

**CONDITION-SPECIFIC SBAR USE IN LONG TERM CARE AND ITS EFFECT
ON NURSE PERCEPTION OF NURSE-PHYSICIAN COMMUNICATION AND ACUTE
CARE HOSPITALIZATIONS: A PILOT STUDY**

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Ineffective communication between physicians and nurses leads to transfer of LTC residents to acute care, with up to 67% found to be avoidable. A currently used Situation, Background, Assessment, Recommendation (SBAR) communication tool requires nurses to discern and organize pertinent data to report, which may limit its usefulness and impact on communication. This study tested whether using a SBAR tool specific to changes in condition for nurses in LTC to collect and report pertinent information improves nurses' perception of nurse/physician communication and decreases the number of acute care hospitalizations.

A quasi-experimental one group pre/posttest was conducted to test condition-specific SBARs (CS SBARs) for the most common reasons for transfer to acute care. All RNs (n=27) and LPNs (n=33) at a 139-bed skilled nursing/post-acute care nursing facility participated. A survey to measure nurse perception of quality of nurse-physician communication, transfers, hospitalizations, and 30-day readmissions to acute care data were collected for a 3 month period pre and post intervention.

Due to high nursing turnover rates adequate power was not achievable to measure perception of quality of nurse-physician communication with confidence. Frustration was the

only item with a significant change, an increase post-implementation ($p=.04$). A significant reduction in transfers (0.44 vs. 0.24, $p<.001$), hospital unplanned admissions (0.34 vs. 0.18, $p=.004$); 30-day readmissions (0.12 vs. 0.04, $p=.011$) was observed 3 months post-implementation. Avoidable transfers were significantly reduced (0.59 vs. 0.41, $p=.001$) as were avoidable hospital admissions (0.45 vs. 0.25, $p=.003$). A significant reduction in transfers due to pneumonia (0.53 vs .0.17, $p=.014$) was observed. No other significant condition-specific transfer reductions were observed.

This study suggests that using CS SBARs when a change in resident condition occurs reduces transfers/hospitalizations/30-day readmissions and when transfers did occur, they were more likely to unavoidable, suggesting that residents were more likely to receive appropriate care in the most appropriate setting. All 30-day readmissions except one were from post-acute care suggesting that perhaps acute care transfers to LTC are not occurring at the optimal time. Estimated Medicare and Medicaid cost savings was \$246,247.

Limitations of the study were small sample size and study was conducted at one facility.

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PREFACE

I have always taken pride in my independent spirit but what this journey has taught me is that not everything in life can be done alone and that it takes a village to earn a PhD. I share this long awaited day with all of those whom I could not have achieved this moment without their help, love, and support...

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Unfortunately, only one name can be on the diploma but be assured that when I look at mine, I will see all of your names etched there as well.

1.0 INTRODUCTION

Although the United States (US) has the highest healthcare expenditures in the world, of 33 countries it ranks 26th for males and 27th for females for life expectancy ("HealthyPeople 2020," 2010). Despite these low rankings the US has the highest per capita healthcare expenditures, \$8,508 per person; \$3,000 more per capita than the second highest ranked country, Norway (Schoen, Osborn, Squires & Doty, 2013).

Chronic illness accounts for one of the major reasons for burgeoning healthcare costs. Data from the Centers for Medicare and Medicaid Services (CMS) in 2014 found that two-thirds of Medicare beneficiaries had 2 or more chronic illnesses, most commonly hypertension (59%), hyperlipidemia (48%), heart disease (31%), arthritis (30%) and diabetes (27%) (Centers for Medicare and Medicaid Services [CMS], 2014b). The per capita spending for those with 0-1 chronic illnesses was \$1,693 whereas those with 6 or more rose to \$29,065. Likewise, 30-day hospital readmissions rate for beneficiaries over 65 with 0-1 chronic illnesses was 6.2% while those with 6 or more had 22% readmission rate (CMS, 2014b).

Another factor impacting healthcare expense is the setting where care is provided. Twenty percent of Medicare hospital patient discharges are transferred to a skilled nursing facility (SNF) and of those transfers, 1 in 4 are readmitted to the hospital within 30 days (Health and Human Services [HHS], 2013b). According to the Medicare Payment Advisory Committee,

up to 76% of these hospital readmissions are avoidable (Hackbarth, Reischauer, & Miller, 2007; Herndon, Bones, Kurapati, Rutherford, & Vecchioni, 2011). Segal and colleagues (2014) found that SNF residents comprised 25% of overall hospital admissions and 45% of all potentially avoidable hospitalizations (Segal, Rollins, Hodges, & Roozeboom, 2014).

The Institute of Healthcare Improvement (IHI) has identified several problems within long-term care (LTC) that lead to a transfer to an acute care hospital:

- Inadequate level of services and staff to deal with the complexity of care, including failure to recognize deterioration of residents' condition
- Inadequate availability and consistency of primary care providers
- Lack of lab and diagnostics in LTC
- Lack of interventions such as IV fluids
- Lack of prevention and early intervention
- Lack of advance directives and palliative care services that prevent readmissions (Herndon et al., 2011)

Unlike acute care facilities where physicians are readily available on site, in LTC registered nurses (RN), licensed practical nurses (LPN), and certified nursing assistants (CNA) serve as the “eyes and ears” for the physician. Current federal requirements for nursing home staffing are an RN on site for 8 consecutive hours 7 days a week; licensed nurse on site 24 hours a day and “sufficient staff” to meet the demands of residents (CMS, 2015e). Physicians are required to provide orders for immediate care when a resident is transferred to a LTC facility and to have a face-to-face visit every 30 days (CMS, 2015e). CMS is currently collecting staffing data and reviewing best practices to determine optimal staffing rates per resident. Future recommendations most likely will be 4.1 direct nursing hours per resident per day. The average

current rate is 3.8 hours per resident. Furthermore, nurse practitioners and physician assistants will be able to write admission orders (CMS, 2015e).

In addition to suboptimal staffing, lack of early identification of changes in resident condition and poor communication of information about resident changes by the nursing staff to physicians have been identified as key issues in the transfer of residents from long-term care (LTC) to acute care (Herndon et al., 2011; Renz, Boltz, Capezuti, & Wagner, 2015).

1.1 BACKGROUND

With the aging “baby boomer” population and the rise of chronic illness, the already overburdened LTC system in the US faces the real possibility to become even more overwhelmed. In addition, the Patient Protection and Affordable Care Act (ACA) contains provisions for LTC services that require changes in the current delivery of care. Once fully implemented, the ACA will provide new payment mechanisms to incentivize SNFs to reduce avoidable transfers to acute care settings; ensure adequate and competent clinical staff; and implement quality assurance and process improvement plans (QAPI) (CMS, 2015f).

1.1.1 Avoidable versus Unavoidable Hospitalizations

Hospitalizations from SNFs create risk to seniors due to increased exposure to potential errors and hospital-related comorbidities such as hospital-acquired infections, delirium, and injury. Furthermore, when hospitalizations do occur, there is uncertainty as to whether the hospitalizations are of benefit (CMS, 2012b; Fried, 1995, 1997; Ouslander et al., 2010).

Avoidable hospitalizations are defined as unplanned hospitalizations that could be prevented by early intervention but require hospitalization once they occur, conditions treatable by competent clinical staff at the LTC facility, or care that neither improves quality of life or outcomes (Polniaszek, Walsh, & Weiner, 2011).

A randomized study by Ouslander and colleagues of 200 hospitalizations in 20 Georgia nursing homes found that 67% of hospitalizations of residents were rated as potentially avoidable (Ouslander et al., 2010). Reasons cited for hospitalization of LTC residents were consistent with the IHI findings:

- Lack of quality of care in assessing and communicating changes in resident condition
- The current structure of reimbursement for healthcare services, for example incentives for bed holds and problem oriented fee schedules
- Concerns about liability if the resident deteriorates
- Lack of on-site availability of primary care experts (physicians, nurse practitioners, physician assistants)
- Lack of ability to obtain laboratory tests or perform timely services such as intravenous fluids
- Lack of availability or communication of advance care plans and orders for palliative care
- Resident/family preferences

1.1.2 Payment Mechanisms for Acute Care Hospitals and Long-Term Care Facilities

Acute care hospitals and LTC facilities have historically been paid using a prospective payment system (PPS) that uses diagnosis-related group (DRG) methodology that sets one payment based on groups of diagnoses codes and severity of illness (CMS, 2014a). The intent is to encourage providers to deliver care in an efficient and cost-effective manner in order to prevent over-utilization of services (Health Care Financing and Organization, 2011).

1.1.2.1 Acute Care Inpatient Prospective Payment System

For inpatient acute care hospitals, the base DRG payment weight is determined by an average of labor and non-labor shares and is adjusted yearly for cost of goods and services, known as the market basket (CMS, 2014a). Additional adjustments that affect the final DRG payment are variables such as location, rural vs. urban; whether the hospital is an approved teaching hospital; and if the hospital has a disproportionate number of underinsured/uninsured patients (CMS, 2014c). Beginning in FY 2015, hospitals began to have a 25% market basket allocation reduction if quality and safety measures are not reported (CMS, 2015c).

Given the numerous factors that impact the final DRG payment, payment is not a consistent number across hospitals. The Healthcare Cost and Utilization Project (HCUP), Hospital Compare, and Pennsylvania Health Care Cost Containment Council (PHC4) include in their collection and analysis of data the average payment of hospitalizations overall and by diagnosis:

Table 1 Payment for Hospitalization without Readmission

Condition	Medicare	Medicaid	Average Blended Payment
Overall	\$12,400*	\$6,500*	\$9,450
Heart Failure	\$15,223**	\$8,074***	\$11,649
Pneumonia	\$14,204**	\$6,826***	\$10,515
Urinary Tract Infection	\$4,976***	\$4,945***	\$4,960

(*Barrett, Wier, Jiang, & Steiner, 2015; **Hospital Compare, 2015; ***PHC4, 2012b)

1.1.2.2 Long-Term Care Prospective Payment System

Since 2003 LTC has also been reimbursed under a PPS system. As opposed to the DRGs used in acute care, LTC uses a classification system of Resource Utilization Groups (RUG). The RUG determination is based on the resident's characteristics and resource use. On October 1, 2015, an updated set of 66 RUGs (RUG-IV), based on 2006 through 2007 clinical data submitted via the Minimum Data Set (MDS) and analyzed via the Staff Time and Resource Intensity Verification Project (STRIVE), was implemented. The MDS 3.0 is a standardized assessment tool that is completed by the nursing facility for every resident at admission. It is used for both clinical assessment and data collection as well as setting of reimbursement parameters by CMS (CMS, 2015f). Each resident is assigned a case-mix allocation based on the MDS 3.0 that is then used to calculate a per diem payment. Residents who are assigned to the upper 52 RUG-IV group are

deemed as qualifying for skilled nursing. Those in the lower 14 RUG-IV group have an individual case determination (CMS, 2015f).

1.1.3 Value Based Purchasing

To align reimbursement for services and quality of care, the ACA has established a value-based purchasing (VBP) program for both acute care hospitals and LTC facilities. The goal is to have insurance payers to transition from paying retroactively for submitted claims to being proactive purchasers of quality healthcare services (CMS, 2015f).

1.1.3.1 Acute Care Value Based Purchasing

VBP includes quality of care measures in reimbursement formulae and was implemented for acute care hospital discharges on October 1, 2014 (CMS, 2014c).

For FY 2015, hospitals were scored on 4 domains:

- Clinical process measures considered to be standard of practice
- Patient experience as measured by Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)
- Patient Outcomes as measured by 30-day mortality rate for MI, HF, pneumonia, hospital-acquired conditions (HAC) and central-line associated blood stream infections
- Efficiency measures assessed by Medicare Part A and B payments provided per beneficiary per episode 3 days prior to admission through 30 days after admission (Hospital Council of Western Pennsylvania [HCWP], 2014).

For FY2016 further measures were implemented to more closely align reimbursement with quality of services as opposed to quantity:

- Acute care hospitals who participate in the Hospital Inpatient Quality Reporting (IQR) program and have meaningful use certified electronic health record (EHR) technology will have a 0.9% increase in reimbursement.
- Hospitals who do not participate in the IQR program will have a 25% reduction in their market basket update
- Any hospital not using a meaningful use EHR will have a 50% reduction in the market basket update
- Penalties for readmissions will continue (CMS, 2015c)

1.1.3.2 Long-Term Care Value Based Purchasing

The ACA has also established a VBP program for LTC. Currently, most of LTC services are reimbursed by private pay (out of pocket or LTC insurance) or Medical Assistance (MA). Although most LTC residents are Medicare beneficiaries, Medicare is a minor funding source of LTC, mostly covering short-stay post-acute care or the first 100 days after a 3 day acute care admission (HHS, 2013a). Beginning in FY 2018, SNFs payment will be partly determined by 3 quality domains: functional status, skin integrity, and major falls resulting in injury (CMS, 2015f). Furthermore, beginning July 1, 2016, nursing facilities will be required to submit staffing information based on payroll data (CMS, 2015d).

In addition, beginning FY 2018, 2% of SNF payments will be withheld. Fifty to 70% will be paid to facilities as incentives based on quality performance. The remaining 30-50% will be used as program savings. The top 20% of highest performing facilities will receive

incentives, the lowest 20% of performers will be penalized and the remaining 60% will be neutral (American Health Care Association [AHCA], 2014b).

CMS will also be initiating an innovation project beginning October 1, 2016 to study and incentivize SNFs to manage 6 qualifying conditions that result in 80% of avoidable hospitalizations among SNF residents: pneumonia, dehydration, HF, UTI, skin ulcers/cellulitis, chronic obstructive pulmonary disease (COPD) exacerbation/asthma (Center for Medicare and Medicaid Innovation [CMMI], 2015).

1.1.4 Bundled Payment Initiative

The Bundled Payments for Care Improvement (BPCI) Initiative contains 4 models that link payments with multiple services during one episode of care. The goal is to improve coordination and quality of care while containing costs (CMS, 2015b).

Models 2 and 3 affect LTC reimbursement. Both models are retrospective payment models that compare charges for services to a target price for the episode of care. Model 2 includes an inpatient acute care hospitalization, post-acute care, and 90 days following hospital discharge. Model 3 is triggered by an acute care hospitalization but the episode of care does not begin until the initiation of post-acute care in a skilled nursing facility, inpatient rehabilitation, long-term care hospital, or home health agency (CMS, 2015b).

1.1.4.1 Medicaid Managed Long Term Services and Supports

Medicaid Managed Long Term Services and Supports (MLTSS) is a model that provides via capitated managed care programs LTC services and home and community-based supports to

allow skilled nursing eligible individuals to remain in their homes. The goals are to broaden availability of services, to promote community inclusion, and to ensure quality and efficiency of services by ensuring that participants have the greatest opportunity for integration into the community; aligning payment structures to include community-based services; promoting active participation by the participant in planning of services that best meet their needs; and developing a framework for providing comprehensive care that integrates physical and behavioral health; (Medicaid, 2013; Medicaid 2015).

1.1.5 Readmission Reduction Program

In addition to avoidable hospitalizations, readmissions add further financial stress to the overburdened healthcare system. Payment has historically been fee for service which does not provide any incentive for healthcare providers to manage resources effectively or to aim to prevent errors and inefficiencies. In 2010, Medicare paid \$480 million and Medicaid paid \$29 million to Pennsylvania hospitals for potentially avoidable readmissions (PHC4, 2012a). Using Prevention Quality Indicators (PQI) developed by the Agency for Healthcare Research and Quality (AHRQ) to identify potentially avoidable hospitalizations, AHRQ, CMS, and PHC4 have identified and quantified the financial burden on Medicare and Medicaid (Barrett et al., 2015; Finger & Washington, 2015; PHC4, 2012a) Table 2 and Table 3 summarize the Medicare and Medicaid payments for the index (initial) hospitalization and the additional cost of an associated readmission within 30 days overall and for the most common diagnoses that result in 30-day readmissions.

Table 2 Payment for Index Hospitalization That Results in a Readmission

Condition	Medicare	Medicaid	Average Blended Payment
Overall	\$13,100*	\$9,500*	\$11,300
Heart Failure	\$8,605**	\$8,761***	\$8,683
Pneumonia	\$8,313**	\$6,516***	\$7,415
Urinary Tract Infection	\$4,858***	\$4,858***	\$4,858

(*Barrett et al., 2015; **CMS, 2015a; ***PCH4, 2012a,)

Table 3 Payment for 30-Day Readmission Episode

Condition	Medicare	Medicaid	Average Blended Payment
Overall	\$13,800*	\$12,300*	\$13,050
Heart Failure	\$14,264**	\$15,900**	\$15,082
Pneumonia	\$13,764**	\$15,900**	\$14,832
Urinary Tract Infection	\$8,232***	\$8,232***	\$8,232

(*Barrett et al., 2015; **Finger, & Washington, 2015; ***PHC4, 2012a)

1.1.5.1 Acute Care Hospitals

Readmission is defined as an admission to a hospital within 30 days of a discharge from the same or another hospital for any cause (CMS, 2015f). Implemented in FY 2013 for hospitals, the Readmission Reduction Program compares the hospital's readmission ratio for each condition to the national average. The initial diagnoses for readmission measurement were

heart failure (HF), pneumonia and acute myocardial infarction (MI). In FY 2015, acute exacerbation of chronic obstructive lung disease (COPD) and admission for elective total hip and total knee arthroscopy were added. FY 2016 pneumonia guidelines were expanded to include aspiration pneumonia and sepsis with a diagnosis of pneumonia. For FY 2017 coronary artery bypass graft (CABG) surgery will be added (CMS, 2015f). A percentage of up to 1% of DRG payments was withheld in FY 2013, 2% in FY 2014, and 3% in FY 2015 (CMS, 2015f).

1.1.5.2 Long-Term Care Readmissions

CMS continues to refine linkage of readmissions to reimbursement. Beginning October 1, 2016 a 30-day all-cause unplanned readmission measure will be added to the quality reporting program (CMS, 2015f; Health Information Management Systems Society [HIMSS], 2015). Data will become available October 1, 2017 on Nursing Home Compare, the CMS website that provides SNF data to the public. SNF reimbursement will begin on October 1, 2018 (CMS, 2015f).

CMS and private insurers have tried to implement reimbursement mechanisms to save financial resources. As the ACA is fully implemented, payment mechanisms continue to evolve in an attempt to motivate provider accountability in preventing avoidable readmissions.

1.1.6 Medical Reasons for Transfer from Long-term Care to Acute Care

Eighty percent of potentially avoidable hospitalizations from SNF were due to 6 conditions: HF, urinary tract infection (UTI), pneumonia, COPD/asthma, skin ulcers/cellulitis and dehydration (CMMI, 2015).

1.1.6.1 Heart Failure

As noted, HF is the most common cause for acute care hospitalization and re-hospitalization. The American College of Cardiology Foundation and the American Heart Association (ACCF/AHA) define HF as a “complex clinical syndrome that results from any structural or functional impairment of ventricular filling or ejection of blood” (p. 246).

Early detection of changes in residents’ cardiac status has been demonstrated to curtail the need for hospitalization. Findings such as a decline in activities of daily living (ADL), weight gain, dyspnea, edema, orthopnea, and paroxysmal nocturnal dyspnea, if identified and addressed early, can halt continuing decline in status and prevent the need for hospitalization (Colucci, 2013; HFSA, 2013).

1.1.6.2 Infection in Skilled Nursing Facility Residents

The incidence of infection in SNF residents is 22% and can result in significant morbidity and mortality (HHS, 2014). The most common infections that develop in SNFs are UTI, pneumonia, soft-tissue, gastrointestinal, and prosthetic device-associated infections (High et al., 2008; American Medical Directors Association [AMDA], 2011).

The typical clinical presentation of infection is often absent in SNF residents. For example, due to decline in basal body temperature that occurs with aging, fever is unlikely (High et al., 2008).

Infection should be suspected in any resident with:

- Decline in functional status such as confusion, incontinence, falling, deteriorating mobility, anorexia, lack of cooperation
- Fever, defined in the elderly as a single oral temperature $>100^{\circ}$ F, or repeated oral temperatures $>99^{\circ}$ F, or an increase in temperature $>2^{\circ}$ F from baseline (High et al., 2008).

1.1.6.3 Lower Respiratory Infection

Lower respiratory infections, primarily pneumonia, have been found to be caused by the same organisms as community-acquired pneumonia: streptococcus pneumoniae, haemophilus influenza, and moraxella catarrhalis (Burke & Bronze, 2013). The difference in residents in SNF and the community-based population is that aspiration due to cognitive or physical disabilities is more prevalent in the nursing home environment (Burke & Bronze, 2013).

1.1.6.4 Urinary Tract Infection

UTI accounts for 20-30% of healthcare associated infections (HAI) in SNFs. Twenty-five to 50% of LTC residents have asymptomatic bacteriuria, creating a dilemma in identifying UTI (CDC, 2012). Furthermore, the typical presentation of dysuria, fever, and hematuria tend to be blunted or not present.

1.1.7 Models of Care to Reduce Patient Transfers

In response to the recognition of need for healthcare reform to prevent avoidable hospitalizations and readmissions many models of care such as Transitions of Care (TOC), Care Transitions

Intervention (CTI), Re-engineered Hospital Discharge Program (Project RED), and Better Outcomes for Older Adults Through Safe Transitions (BOOST) have been developed to improve gaps in services and quality of care during transitions of care. Although these models have been found to be effective at reducing readmissions, they target transitions of care from the acute care hospital to other care settings. Few models address avoidable transfers from the LTC setting to acute care (Ouslander et al., 2010).

1.1.8 Nurse-Physician Communication and Collaboration

Ineffective and/or lack of communication have been cited as significant causes for decline in resident status and transfers to acute care. Joint Commission maintains a database of 9,376 sentinel events from 2004 to the present (Joint Commission, 2015b). For 2015 through the 3rd quarter, 47% of sentinel events were due to poor communication among healthcare personnel (Joint Commission, 2015a).

As the Institute of Medicine (IOM) noted in *Crossing the Quality Chasm* (2001), healthcare continually becomes more complex with multiple providers, disciplines, and care settings. As the growing complexity of healthcare and the changing models of care evolve there is and will continue to be greater reliance on effective communication and collaboration of healthcare teams. Because of this complexity, the hierarchical model that is traditional in healthcare is no longer effective as no one person can have all of the knowledge needed to make optimal decisions (Narayan, 2013).

Furthermore, increased collaboration between physicians and nurses has been associated with higher quality care, fewer errors, more positive work environment, lower costs, higher job

satisfaction and improved nurse retention (Schmalenberg et al., 2005). Nurses who feel they have a collaborative relationship with the healthcare team are more likely to identify and report problems earlier. Conversely, if they do not feel a part of a team, they are often reluctant or refuse to call physicians, even when urgent. Reasons for hesitancy to report changes to physicians include intimidation, fear of getting into a confrontational discussion, fear of retaliation, and the fact that it seems nothing ever changes (Boltz, Wagner, Capezuti & Lawrence, 2013; O'Daniel & Rosenstein, 2008).

To promote effective, high quality communication among healthcare teams, INTERACT is a model developed by Joseph Ouslander, MD and colleagues that contains tools to assist LTC staff in reporting changes in resident condition. It uses one generic nursing data and collection form Situation, Background, Assessment, Recommendation (SBAR) for all changes in resident condition. This requires the nurse to quickly discern pertinent data from impertinent data when assessing and reporting changes in status.

SBAR is the communication tool that is intended to help nurses perform quality clinical assessment, and to organize and communicate pertinent information to the physician. It is based on the Navy's tool to prevent nuclear accidents and later adopted by the aviation industry in response to their findings that lack of teamwork and standardized communication were found to be the root cause of frequent plane crashes (O'Daniel & Rosenstein, 2008; Renz et al., 2013). The goal of the tool is to focus on effective teamwork and standardization in communication to promote improved collaboration, handoffs, and early identification of problems (O'Daniel & Rosenstein, 2008). It forms a structure to promote gathering of data and critical thinking (Narayan, 2013).

Michael Leonard, MD from Kaiser Permanente-Denver translated the aviation's findings to healthcare. The SBAR tool is intended to provide a clear, concise, standardized approach for communication among clinicians (Leonard, 2004). It has been shown to improve early identification of changes in patient condition, communication time and openness between clinicians. However, these improvements have been found in acute care settings (DeMeester, Verspuy, Monsieurs, & VanBogaert, 2013; Dingley, Daugherty, Derieg, & Persing, 2008; Velji et al., 2008).

S (Situation): What is going on with the patient/resident?

B (Background): What is the clinical background/context

A (Assessment): What do I think the problem is?

R (Recommendation): What would I do to correct it? (Leonard, 2004)

1.2 CONCEPTUAL FRAMEWORK

The high cost, inefficiency and ineffectiveness of the current healthcare system are some of the driving forces behind the ACA. The legislation, signed March 23, 2010 has mandated that the healthcare system be designed to reduce errors and cost while improving quality. As noted, this has led to the development of models that connect individual, communities and healthcare entities, primarily when patients are discharged from hospitals. The INTERACT model, instead of targeting transfers from acute care, is directed at reducing avoidable transfers from SNFs by promoting early identification and communication of changes in status of residents in LTC; employing quality improvement methodologies such as plan-do-study-act (PDSA) and root cause

analysis (RCA) to improve processes of care; and providing tools for analysis of transfers for appropriate process improvement (Ouslander & Berenson, 2011b).

1.2.1 INTERACT Implementation

Care planning for the resident should begin at the time of admission to the LTC facility and should be a continuous process throughout the resident's stay. The INTERACT Advance Care Planning tool ensures that advanced care planning is addressed and accessible. The medication reconciliation tool provides a mechanism for accurate transition of medication orders from the discharging site to the LTC facility.

1.2.1.1 Identification of Change in Resident Status

When a change in status is identified by any member of the nursing home staff or the family, communication is critical to ensure early and accurate assessment. The typical process when a change is noted is shown in Figure 1.

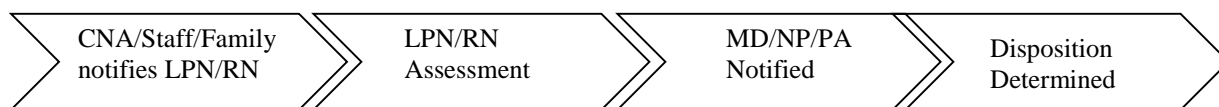


Figure 1 Change in Resident Status Assessment Process

Historically, this has typically been a verbal communication process without standardization and consistent documentation of pertinent information. The INTERACT model contains several tools to enhance communication, standardize processes and provide adequate documentation (Table 4).

Table 4 INTERACT 4.0 Communication Tools

INTERACT Tool	Purpose	Process
Stop and Watch	Assist CNA/Staff/Family to identify and notify LPN/RN	Change noted is circled and given to LPN/RN
SBAR form	Provides gathering of resident information during assessment that may be pertinent to report. Provides documentation of change, plan of care, and outcomes	Completed by LPN/RN during assessment and used to report and document change
Care Pathways	Provide decision trees and actions developed by expert opinion needed when common problems identified	Utilized to identify pertinent information and care when a change in resident status is noted
Acute Change in Condition File Cards	Assist in identifying when a change is urgent vs. non-urgent	Utilized by licensed staff to assist in decision making such as report/not report and/or whether to transfer

(Ouslander, Bonner, Herndon, & Shutes, 2014)

1.2.1.2 Transfer to Acute Care Necessary

The purpose of INTERACT is not only to prevent avoidable transfers to acute care but to also provide a safe and accurately communicated transfer to another facility. When a transfer is deemed necessary, two key steps are implemented. The first is to utilize tools that provide pertinent and accurate communication between the care settings and the second is to perform a quality improvement assessment of all transfers to acute care facilities (Figure 2).



Figure 2 QI Process when Transfer to Acute Care Occurs

Transfers from one setting to another typically involve a verbal report and sometimes a copy of medical records. Until INTERACT, there has not been a standardized process to ensure that healthcare teams receive timely and accurate information. In addition, transfers occur without any analysis as to the reason, identification of trends, outcome measurement, or problem solving as to whether there are or could be services provided in the LTC facility to prevent transfer, and/or education/process improvement to prevent, identify and communicate problems before transfer becomes necessary. INTERACT contains tools to assist in both of these critical areas (Table 5).

Table 5 Acute Care Transfer Tools

INTERACT Tool	Purpose	Process
<ul style="list-style-type: none"> ▪ Transfer Checklist ▪ Nursing Home to Hospital Transfer Form ▪ Hospital to Post-Acute Transfer Form ▪ Medication Reconciliation Form 	Assist staff in clearly and succinctly communicate critical information for ED and hospital staff and LTC staff when resident returns from acute care	Completed at time of transfer to ensure that all pertinent information is transferred with resident

(Ouslander et al., 2014)

1.2.1.3 Quality Improvement Assessment Post-Transfer

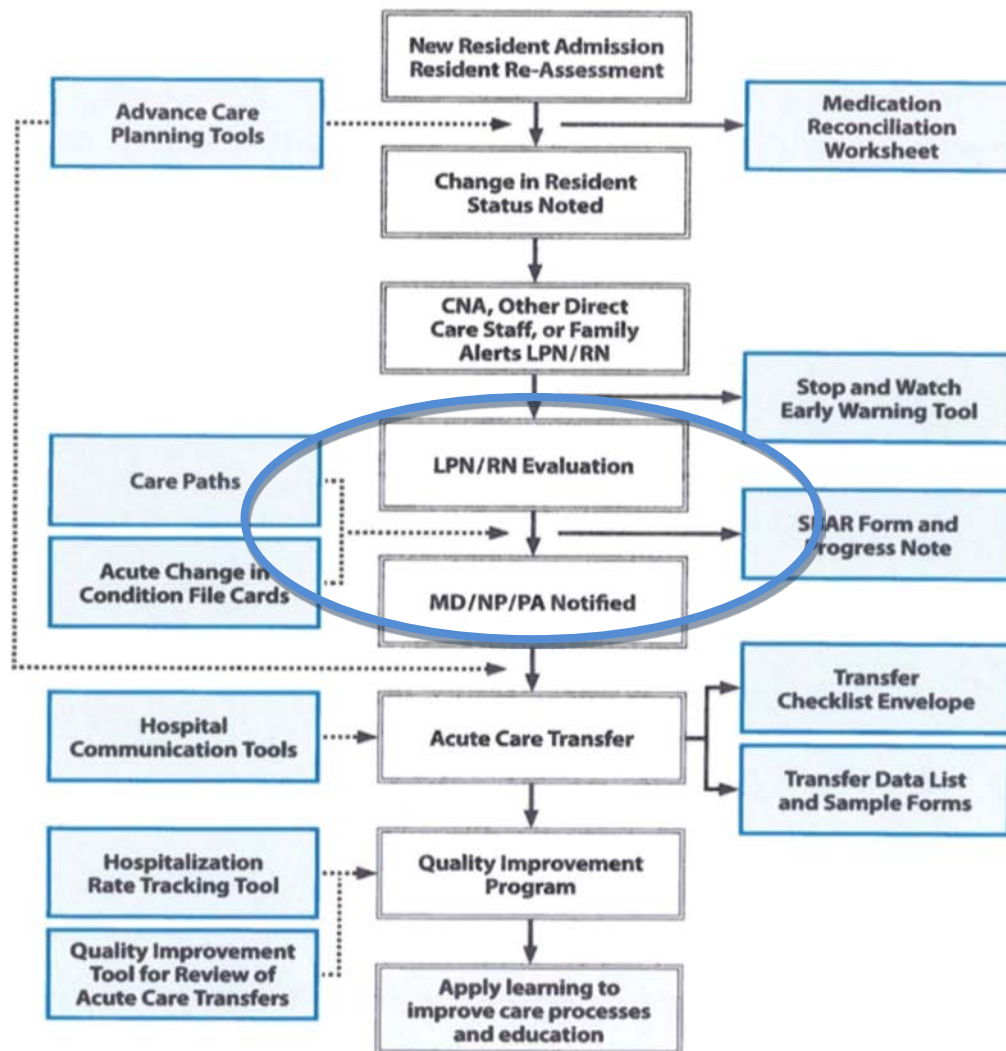
A key component of the INTERACT program is to identify process improvement opportunities to prevent avoidable transfers. Post transfer, an analysis is critical to track, trend, and benchmark clear and defined measures; and to conduct a RCA to identify areas for improvement. Table 6 contains the INTERACT tools to support quality improvement analysis and goals.

Table 6 INTERACT Post-transfer to Acute Care QI Analysis Tool

INTERACT Tool	Purpose	Process
Rate Tracking Tool Hospitalization	Document details of every resident transfer to an acute care facility and assists in calculating transfer outcomes	Contains imbedded formulae in Excel to automatically calculate and trend rates of entered nursing facility data such as transfers, admissions, re-admissions to acute care
INTERACT Quality Improvement Tool to Review Acute Care Transfers	Guides and documents key findings for process improvement	Reviewed for each transfer and assists with performance of root cause analysis
Quality Improvement Summary Worksheet	Guidance on how to roll up data	Review to target education and process improvement

(Ouslander et al., 2014)

Using the INTERACT Tools In Every Day Care



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Figure 3 INTERACT Process Flow and Area of Focus for This Study

Figure 3 outlines the steps of the INTERACT process. The INTERACT model addresses the resident experience from admission to discharge/death (Ouslander et al., 2014). As previously noted, SBAR has been found to improve clinician communication, early identification and time to resolve patient problems. However, the studies have primarily been in acute care settings. For this study, the focus will be on the utilization of condition-specific SBARs (CS SBAR) as an assessment and communication tool for nurses to report changes in resident condition in the LTC setting.

1.3 PURPOSE

The purpose of this research is to determine if utilizing condition-specific SBAR (CS SBAR) tools specific for nurses in LTC to collect and report pertinent information when resident status changes:

- Improves the nurses' perception of nurse-physician communication and collaboration
- Decreases the number of hospitalizations from LTC to acute care facilities
- Contributes to financial savings for resident care

1.3.1 Specific Aims

The specific aims for this research study include:

1. Describe the implementation and utilization of CS SBARs for change in resident condition in LTC.
2. Determine if there is preliminary evidence to suggest that utilizing CS SBAR tools to collect and report pertinent information about changes in resident status to physicians:
 - Improve nurses' perceptions of the quality of their communication and collaboration with physicians.
 - Decrease the number of hospitalizations from LTC facilities to acute care.
 - Provides financial savings for resident care.

1.3.2 Research Questions

1. What is the effect of the implementation of a CS SBAR intervention on nurse perception of the quality of nurse-physician communication and collaboration when a change in resident status is reported as measured by the Long Term Nurse-Physician Communication Scale (LT Nurse-Physician Communication Scale)
2. What is the utilization of CS SBARs when there is a change in resident status as measured by:
 - 1) Number of fully completed CS SBARs compared to total number of CS SBARs utilized

- 2) Number of total CS SBARs utilized compared to number of indications for utilizing CS SBAR as measured by number of residents with change in condition on the 24-hour nursing report
 - 3) Number of fully completed CS SBARs compared to number of indications for utilizing CS SBAR as measured by number of residents with change in condition on the 24-hour nursing report
3. What is the effect of the implementation of CS SBAR intervention on the outcomes:
- 1) all-cause hospital admissions from SNF
 - 2) hospital admissions related to HF, pneumonia, and UTI
 - 3) all-cause 30 day readmissions from SNFs
 - 4) 30-day readmissions related to HF, pneumonia, and UTI

1.4 SIGNIFICANCE

To date, models of care developed to reduce hospital admissions have primarily targeted patients moving from acute care to other settings. With 20% of Medicare hospital discharges being transferred to SNF and hospitalizations from LTC accounting for 45% of all avoidable hospitalization, best practices need to be developed to prevent avoidable transfers to acute care (Boutwell et al., 2009b; Segal, 2014). INTERACT is the only model to date that focuses on the reduction of avoidable transfers specifically from LTC to acute care (Boutwell et al., 2009b; Ouslander et al., 2011a).

SBAR has been effective in enhancing communication in acute care settings but limited research has been conducted on its use in LTC (DeMeester et al., 2013; Dingley et al., 2008; Velji et al., 2008). Although INTERACT does contain a SBAR component to assist nurses in gathering information to report to physicians, it is a generic form for all conditions, requiring the nurse to discern what information is pertinent to report. A SBAR form for the most common changes in resident condition that clearly states the information necessary to report may improve communication and collaboration between nurses and physicians, thereby reducing the number of avoidable transfers to the acute care setting.

Although consistent scheduling, assigning nurses and CNAs to the same residents daily, is the standard approach in LTC, given the turnover rates and staffing shortages, nurses and CNAs are often reassigned to different residents and/or units based on staffing need. For the purposes of research design and study, maintaining independent group comparisons may be unrealistic. In addition, given the annual turnover rate of 50% for RNs and 36.4% for LPNs in LTC, participant recruitment and retention may be jeopardized (ACHA, 2014a). Therefore, conducting a pilot study is imperative to design future large-scale studies.

2.0 LITERATURE REVIEW

2.1 HOSPITAL TRANSFERS FROM LONG-TERM CARE

As noted, lack of quality of assessment and communication of change in resident status is one of the reasons cited for transfers from LTC to acute care (Ouslander et al., 2010). In addition, acute care may not be the optimal setting to meet resident needs. A study by Ouslander and colleagues (2010) was conducted to determine if the hospital was the lowest level of care to safely meet residents' needs when residents were transferred to acute care. A panel of 12 long-term care experts retrospectively reviewed minimum data sets (MDS) and CMS data of the 10 nursing facilities in Georgia who had the lowest number and the 10 facilities that had the highest number of unplanned hospitalization rates. They found that of 200 hospitalizations, 134 (67%) were rated as potentially avoidable. Several factors were identified that influence decisions to transfer residents from LTC (Table 7).

Table 7 Factors that Influence Transfer to Acute Care

Medicare reimbursement structure for hospitals, nursing homes, home health agencies, and physicians
Concerns about liability and sanctions for managing an acute patient in a non-acute setting
Emergency time constraints and lack of availability of community-based care options
Lack of availability of diagnostic and pharmacy services in LTC settings
Availability of trained physicians, NP/PAs, RNs and CNAs in LTC
Lack of availability or communication of advance care plans and physician orders for palliative or hospice care
Patient and family preferences

(Ouslander et al., 2010; Ouslander & Maslow, 2012)

2.2 INTERVENTIONS TO REDUCE ACUTE CARE TRANSFERS (INTERACT)

New care delivery models are emerging in response to the ACA which require changes in payment structure, demonstration of adequate staffing, competency of staff, and quality and process improvement plans for all LTC facilities (CMS, 2015f). This is an impetus for the development and implementation of models of care that encompass both quality improvement methods and tools to assist staff in avoiding unnecessary transfers. The INTERACT model, developed by Joseph Ouslander, MD and colleagues, is the only model to date that focuses on the LTC setting.

In a 6 month study where INTERACT II was implemented in 25 nursing homes in three states, there was a 17% reduction in hospital admissions from the same time period one year prior. It was found that the level of engagement of the facility in implementing INTERACT made a difference in hospital admission rates, thereby supporting the impact of the model.

Engagement was determined by the project coordinator of the study who communicated with the facilities every 2 weeks. At the end of the study and without knowledge of the rate of hospitalizations, an engagement score was assigned. Of those who rated themselves as highly engaged, a 24% reduction in hospital admissions was noted compared to a 6% reduction in those not engaged. The control group had a 3% reduction. Although the cost of implementation of INTERACT was \$7,700 per nursing home, the projected savings to Medicare in a 100-bed nursing home was \$100,000 to \$125,000 per year (Ouslander et al., 2011a, Ouslander et al., 2014). It is important to note that no nursing facility fully implemented the entire INTERACT model. There is currently a three year NIH funded study underway from 2012 to 2015 that will study the outcomes of 200 nursing homes who implement INTERACT (1RO1NR012936-01A1). Results are expected to be published later in 2016.

2.3 NURSE-PHYSICIAN COMMUNICATION/COLLABORATION

Communication and collaboration are similar but different attributes. Communication is defined as “the process of using words, sounds, signs, or behaviors to express or exchange information” (Merriam-Webster, 2013). Whereas, collaboration is to “work jointly with others or together especially in an intellectual endeavor” (Merriam-Webster, 2013). In healthcare, this translates to healthcare professionals working cooperatively in complementary roles, sharing responsibility for problem-solving and making decisions to develop and implement plans for patient/resident care (O’Daniel & Rosenstein, 2008). Collaboration is generally measured by survey questions that assess the degree of nurse involvement in decision making: attributes such as physicians

listening to nurses, and the quality of relationships between physicians and nurses (Schmalenberg et al., 2005). Both communication and collaboration are critical to the success of teamwork and optimal care of residents.

While nurse-physician communication and collaboration have been identified as critical components of optimal quality of resident care, barriers have also been found to impede ideal communication. Barriers in the LTC setting identified by Renz et al. (2013) include: lack of nurse assessment and data collection skills, different communication styles of nurses and physicians, on-call providers who do not know the residents, and environmental noise. Conversely, organization of pertinent information and high nurse confidence in communicating information have been found to enhance nurse-physician communication (Renz et al., 2013).

Although nurses rate collaboration as important to quality care, physicians have historically rated its importance much lower (Schmalenberg et al., 2005). A study by Manojlovich and Antonakos (2008) found that nurses rated the communication in the work setting as not effective. In addition, physicians rated information obtained from nurses as not useful or important to physician decision-making. Physicians rated succinct communication, the ability of the nurse to anticipate his/her needs, and the ability to correctly take orders as very important factors for effective communication and collaboration. (Manojlovich & Antonakos, 2008).

2.4 SITUATION, BACKGROUND, ASSESSMENT, RECOMMENDATION

INTERACT uses the SBAR communication tool as a framework to collect and report resident information in LTC settings (Appendix B). Its purpose is to help nurses organize and communicate pertinent information. Although SBAR has been found to be effective in improving communication between nurses and physicians, it has been mostly studied in acute care settings.

Dingley and colleagues (2008) conducted a pre/post study of implementation of the SBAR in the medical intensive care unit (MICU) and acute care unit (ACU) in an urban hospital in Colorado. Four hundred ninety-five communication events were collected:

- MICU (n=112) pre-implementation and (n=112) post-implementation
- ACU (n=135) pre-implementation and (n=136) post-implementation

Communications in the MICU were mostly (74.6%) face-to-face with physicians. Whereas, the ACU communications were primarily phone calls to speak with a physician or to obtain information. The outcome measurement was the time it took to communicate with a healthcare provider and to resolve a problematic issue. The MICU mean communication and problem resolution time pre-intervention was 7.19 minutes and post-intervention 3.69 minutes ($p=.0007$). ACU communication and problem resolution of 8.29 minutes pre-intervention and 6.51 minutes post-intervention was not statistically significant ($p=.27$) (Dingley et al., 2008). This study did not include the effect on patient outcomes of improved communication and problem resolution

DeMeester and colleagues implemented SBAR in a tertiary 573-bed hospital. Two-hundred seven, pre-intervention (n=81), post-intervention (n=126), serious adverse events (SAE) were studied. Although the post-intervention group participants were younger (68 years pre-

intervention, 63 years post-intervention), the number of unplanned transfers to ICU increased from 51 to 105 post-intervention. (RRR=50%, (95% CI 30-64), $p=.001$). The number of deaths decreased from 16 pre-intervention to 5 post-intervention (RRR=-227%, 95% CI (-793, -20); $p<.001$) and SBAR completions post-intervention increased from 32% pre-intervention to 56% ($p<.005$) (DeMeester et al., 2013).

Another pre/post SBAR intervention study was conducted on a stroke unit in a tertiary hospital to measure staff perception of quality improvement. Pre-intervention (n=415) and post-intervention (n=319) surveys were analyzed. There was statistically significant change in organizational learning-continuous improvement ($p=.03$); communication openness ($p=.04$); feedback about an adverse event ($p=.00$); staffing ($p=.05$); and management support for safety ($p=.02$). Although frequency of reporting of events increased from 44 to 55 post SBAR implementation it was not significant ($p=.08$). Nor was a statistically significant difference found in the perception of teamwork within units ($p=.08$) or across units ($p=.26$; $p=.39$) (Velji et al., 2008).

SBAR has also been tested as a tool for teaching emergency medicine residents communication skills during handoffs. Tews, Liu, and Treat (2012) utilized SBAR to see if it improved communication between healthcare team members. Twenty-five first year emergency medicine residents at the University of Wisconsin participated in the pre/post study. In July of the first year of residency, residents were presented a case. After gathering data, the resident presented the case to the examiner. They then received a 1-hour lecture on patient safety, approaches for presenting cases, and SBAR, and then they were given another case to present. When the residents returned to the emergency department for rotations, they were scheduled for a session without being told the purpose and were provided another case to present. They were

then provided a brief review of SBAR and given a second case to present. Residents were scored by 2 reviewers using a 17 item checklist. One point was given for each completed item, 0 for excluded items. There was a significant difference ($p=.001$) between pre-training score and the second post-training case supporting that SBAR improves communication among health team members. There was not a significant difference between the second pre-training and first post-training case ($p=.34$), indicating that education was retained (Tews, Liu, Treat, 2012).

Although findings in acute care settings have shown promise, SBAR in the LTC setting has not been well-studied. As noted, Ouslander currently has a randomized control trial in progress but data is not yet available (1RO1NR012936-01A1). A case report by Renz and colleagues studied the feasibility and utility of a SBAR protocol in LTC and found that 90% ($n=40$) of RNs and LPNs reported difficulty in communicating with physicians and identified barriers to effective communication as 1) physician attitude described as hurried and/or rude, 2) disagreement with physician's treatment plan, 3) language barriers when English is not the primary language of the physician.

Utility was measured by the number of completed INTERACT 2.0 SBARs and informal surveying of nurses. Over a 3 month period, 65 SBARs were completed with a 78% completion rate (all elements completed). Nurses reported that the SBAR form helped them to organize their thoughts and improved their confidence in communicating with physicians. No statistical analysis was performed in this study (Renz et al., 2013).

Renz and colleagues (2015) implemented the INTERACT II SBAR in a 137-bed skilled nursing facility. The version of the INTERACT SBAR tool was not cited. Using a repeated measures design RNs ($n=21$) and LPNs ($n=19$) participated. Pre-intervention data was collected for 1 month prior and 3 months post-implementation. Findings: SBARs were completed 100%

of the time for all transfers to the emergency department. Transfers declined from 22 during the pre-implementation month to 15 the third month of post-implementation. However, transfers that did not result in admission increased during each of the 3 post-implementation months, from 2 pre-implementation to 3, 11, and 7 respectively for each month. Avoidable transfers remained constant at 2 for each post-implementation month. Thirty-day readmission rates declined from 3 pre-implementation to 0 the third month post-intervention (Renz, Boltz, Capezuti, & Wagner, 2015). An assumption was made that the total number of SBARs completed minus number of transfers equaled transfers avoided by using the SBAR as opposed to discerning when the SBAR was used for a change in condition but transfer was not indicated. No statistical analysis was described in the article.

Although SBAR has been demonstrated to improve communication, most research has focused on communication between and within acute care clinical units. The acute care setting is not conducive to studying avoidable hospitalizations from LTC to acute care. To prevent avoidable transfers from the LTC setting to acute care, research needs to be conducted to develop effective strategies to optimize nurse and physician communication. Although Ouslander and colleagues have conducted studies on the INTERACT model, other than the case report and repeated design study by Renz et al. (2013, 2015) they have not focused specifically on SBAR or on the use of CS SBARs.

In addition, the SBAR tools that have been studied utilized generic forms for all changes in condition. This requires the nurse to quickly determine what pertinent information is needed to communicate to the physician. Furthermore, there are differences in communication styles that create a communication gap. Physicians process information in a succinct and methodical

manner whereas nurses are taught to be descriptive, create a communication gap (Beckett & Kipnis, 2009).

Given the changes in care delivery, payment structures, and evidence that most transfers from LTC to acute care are avoidable, further research is needed in utilizing SBAR in the LTC setting. By utilizing CS SBARs that contain the pertinent information for each condition that needs to be reported may improve resident assessment and communication with the physician, thereby improving nurse perception of the quality of nurse-physician communication and collaboration; and reducing the number of preventable hospitalizations. This study will address this gap in literature by testing a new type of SBAR that is specific to the most common changes in resident condition and by testing the effectiveness of CS SBAR in the LTC setting.

3.0 METHODOLOGY

3.1 DESIGN

A quasi-experimental one group pre/post-test design was used. This design was chosen for several reasons: the high staff turnover and low staffing patterns, common in LTC, and the inability to control staffing assignments are barriers to having a separate control group. The majority of clinical staff members are CNAs with nurses primarily overseeing one or multiple units. Therefore, the number of available participants is low. Although assigning the same staff to the same residents daily, known as consistent scheduling, is the standard practice in LTC, it is often necessary to assign staff to different residents and/or units, resulting in the threat of diffusion. Advantages of using the pre/post-test design is that it controls for baseline characteristics of participants, permits studying the intervention in the natural setting, and the design supports measuring the degree of change post intervention.

3.2 SAMPLE AND RECRUITMENT

The target population is RNs (n=27) and LPNs (n=33) who work in a LTC setting: skilled nursing, dementia, and post-acute units, and are responsible for the assessment and communication of resident changes. A convenience sample to study nurse perception of communication and collaboration was recruited from a LTC nursing facility in southwestern PA. The facility has 139 resident beds in skilled nursing, dementia, and post-acute care. Both RNs and LPNs are responsible for clinical assessment and communication with physicians. Therefore, both levels of nurses will be invited to participate in the study. Nurses must have graduated from an accredited RN or LPN program at least 6 months prior to the implementation of the study and must have been employed by the facility at least 20 hours per week for at least 3 months. The CS SBARs were implemented throughout the facility as the standard of care hence, all nurses employed by the facility participated in studying the use of the CS SBARs and the effect on hospitalizations and 30-day readmissions.

University of Pittsburgh Institutional Review Board (IRB) approval was sought prior to recruitment. Exempt status was granted as the CS SBARs were implemented as the standard of care throughout the facility, the nurse survey was anonymous, and the researcher did not have access to any protected health information. Participation in the study was offered to all eligible nurses. Announcement and education, including opportunity for questions and answers regarding the study occurred via face-to-face sessions conducted for all shifts by the facility educator and unit managers who were trained and observed by the researcher during a role playing session.

3.3 INTERVENTION: SBAR

Nine CS SBARs for change in cardiac status, change in respiratory status, acute mental status change, falls, skin integrity, change in oral/fluid intake, gastrointestinal (GI) symptoms, fever of unknown origin, and a generic miscellaneous CS SBAR were developed by the researcher. Each contains the pertinent information for assessment and communication to the physician (Appendix C). Each CS SBAR is structured to collect and organize resident assessment, diagnostic studies, and important information such as code status and advanced directives. A checklist, short answer format, and charting by exception are utilized so that the nurse can quickly see the information that needs to be collected and can quickly document the findings. The CS SBARs were reviewed by 2 LTC Medical Directors, 2 Geriatricians, 2 Directors of Nursing, 1 CRNP, 3 RNs and 2 LPNs, all with more than 5 years of LTC experience. In addition, they were reviewed by 2 primary care physicians. All recommendations were incorporated and all reviewers agreed on the final version.

All nurses were instructed on the purpose and implementation of SBAR. All education was conducted by the researcher, facility nurse educator, and program managers. The researcher observed the educator and program managers during a role play session to ensure consistency. Education occurred at huddles held on the nursing units. If any nurses were not in attendance of any session, individual face-to-face sessions occurred.

Each session included:

- Overview of INTERACT and SBAR
- The use of SBAR when a change in resident status occurs and physician needs to be notified

- Review of the 9 condition-specific SBAR tools
- Review of the process for obtaining, documenting and communicating pertinent information to physician utilizing SBAR tools
- Use of miscellaneous SBAR if condition change doesn't meet parameters of condition-specific SBARs
- Collection of SBARs for post-event evaluation

Prior to education and implementation, a team consisting of the senior executive director, director of nursing (DON), assistant director of nursing (ADON), 4 program managers, facility educator, and 2 staff RNs and 2 staff LPNs developed the process for use and evaluation. A laminated copy was kept with the CS SBARs on each nursing use for reference (Figure 4).

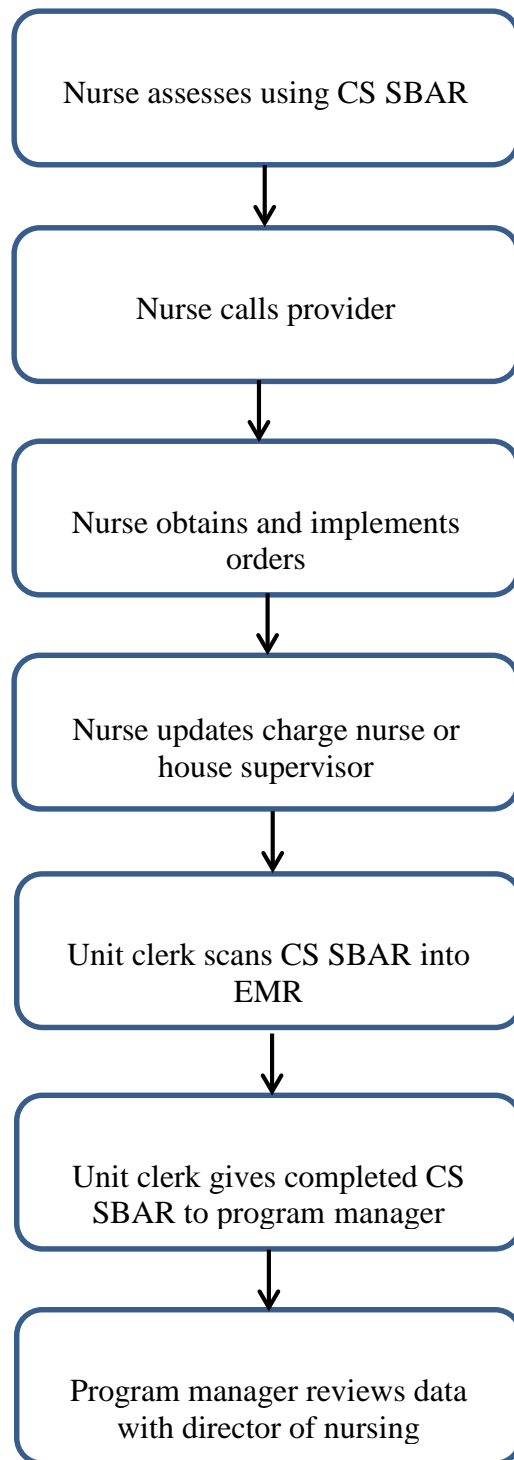


Figure 4 Condition-Specific SBAR Process when a Change in Condition Occurs

3.4 DATA COLLECTION

3.4.1 Nurses' Perception of Nurse-Physician Quality of Communication and Collaboration

After IRB approval was obtained and an informational and educational session was held participants were asked to complete a brief investigator-developed sociodemographic questionnaire and the Long Term Nurse-Physician Communication Scale (LT Nurse Communication Scale) (Appendix D). A unique code was developed by each participant that maintained anonymity for post-intervention survey matching. The questions for code development were:

- First letter of mother's maiden name
- First letter of favorite mode of transportation
- First letter of favorite animal
- Number of children mother had

The LT Nurse-Physician Communication Scale was administered again 3 months after the implementation of CS SBARs. Post-intervention questionnaires were matched to pre-intervention questionnaires via the unique code. All surveys were maintained in a separate locked cabinet accessible only to the researcher.

The nurses' perception of the quality of nurse-physician communication was measured by the LT Nurse-Physician Communication Scale developed by Ingrid K. Schmidt, PhD to assess the quality of communication between nurses and physicians (Schmidt & Svarstad, 2002).

It is modeled on an ICU nurse-physician questionnaire by Shortell that utilized a series of interviews and focus groups with nurses to collect data. Schmidt used 8 of the 9 items and created an additional 10 items for the LT Nurse-Physician Communication Scale. It utilizes a 5-point Likert scale with 1 being very difficult/almost never/none/never and 5 being very easy/always/a lot/almost always. The new scale was reviewed by 20 nurses for content validity. Factor analysis was used to establish construct validity. Based on the factor analysis, four subscales were identified: 1) openness, 2) relevance, 3) mutual understanding, 4) frustration with the interaction. Groups of LTC nurses (quantity not stated) were utilized to test reliability. Cronbach's alpha coefficient is 0.92 for the 18 items (Schmidt & Svarstad, 2002).

3.4.2 Condition-Specific SBAR Utilization

During study implementation, CS SBARs were collected and evaluated by the DON and program manager of the unit for accuracy. The DON also reviewed for: 1) accuracy of completion of CS SBAR; 2) evidence of communication with the physician; and 3) resident disposition: remained at nursing facility, transfer to acute care, hospital admission, 30-day readmission. The researcher also reviewed de-identified CS SBARs for full completion, defined as all categories addressed. Changes in resident condition were monitored via the 24-hour nursing report, a tool used at the facility to communicate a unit summary of changes in resident condition to the DON (Appendix E). It was compared to the CS SBARs to determine the proportion of changes in resident condition that had a CS SBAR completed.

All data were maintained and de-identified by the DON. The researcher had no direct contact with any residents. After the CS SBAR tools were implemented, data were collected monthly for 3 months.

3.4.3 Transfers from Long-Term Care to Acute Care

Baseline data on resident transfers to acute care, hospital admissions, and 30-day readmissions rates for HF, pneumonia, UTI, and all-cause admissions and all-cause 30-day readmissions were collected for 3 months prior to implementation of intervention utilizing the INTERACT Quality Improvement Tool for Review of Acute Care Transfers (Appendix E).

3.5 STATISTICAL ANALYSIS

For nurse perception of the quality of nurse-physician communication and collaboration, the Wilcoxon signed rank and intention-to-treat (ITT) analysis were used to calculate the pre and post CS SBAR mean scores on the LT Nurse-Physician Communication Scale to measure the nurse perception of nurse-physician communication and collaboration. Since CS SBAR is a newly implemented intervention, descriptive statistics were utilized to calculate the proportion of the number of CS SBARs utilized and for proportion completed, defined as all categories completed. Lastly, the 2 proportion Z-test and Fisher's exact test were used to determine the difference between the pre and post CS SBAR implementation for hospital admission and 30-day

readmission related to each condition: HF, pneumonia, and UTI. All-cause admissions and all-cause 30-day readmissions were also calculated.

3.5.1 Research Question 1

1. What is the effect of the implementation of a CS SBAR intervention on nurse perception of the quality of nurse-physician communication and collaboration when a change in resident status is reported as measured by the LT Nurse-Physician Communication Scale?

Table 8 Calculation and Statistical Analysis of Nurse Perception Communication and Collaboration

Independent Variable	Dependent Variable	Statistical Analysis
Condition-specific SBAR use overall and for HF, pneumonia, and UTI	Nurses' perception of quality of communication and collaboration with physicians	Wilcoxon signed rank test for dependent samples Intention-to-treat (ITT) Type I error rate = 0.05.

Wilcoxon signed rank was used to compare the pre and post CS SBAR mean scores on the Long-term Nurse-Physician Communication Scale. This test was chosen because it is nonparametric and normality of the survey scores in a small sample cannot be assumed. The groups were related and the level of measurement was ordinal. Using descriptive results reported by Schmidt (2002), an effect size of 0.75, which is equivalent to a 9 point change in the LT Nurse-Physician Communication Scale would be detected at 80% power with 20 nurses completing the pre and post-intervention scale. A secondary ITT analysis was performed to control for the effects of participant drop-out (e.g. staff turnover; and crossover, that occurs when nurses work on multiple units). For the ITT analysis, pre-SBAR scores on the LT Nurse-

Physician Communication Scale were brought forward as post-intervention values for subjects withdrawing before the second survey. A type I error rate of .05 was used to judge statistical significance.

3.5.2 Research Question 2

1. What is the utilization of CS SBARs when there is a change in resident status as measured by:
 - 1) number of fully completed CS SBARs compared to total number of CS SBARs utilized
 - 2) number of total CS SBARs utilized compared to number of indications for utilizing CS SBAR as measured by residents with change in condition reported on the 24-hour nursing report
 - 3) number of fully completed CS SBARs compared to number of indications for utilizing CS SBAR as measured by number of residents with a change in condition on the 24-hour nursing report.

Table 9 Calculations and Statistical Analysis Utilization of SBARs

Independent Variable	Dependent Variable	Statistical Analysis
Condition-specific SBAR use overall and for HF, pneumonia, and UTI	Fully completed SBARS $\frac{\# \text{ fully completed CS SBARs}}{\text{Total \# CS SBARs}}$	Proportion Standard error = $\sqrt{p*(1-p)/n}$ 95% confidence interval
	SBARs utilized when indicated $\frac{\# \text{ CS SBARs utilized}}{\# \text{ residents with change in condition on 24-hour nursing report}}$	Proportion Standard error = $\sqrt{p*(1-p)/n}$ 95% confidence interval
	SBARs fully completed compared to number indicated $\frac{\# \text{ fully completed SBAR}}{\# \text{ of residents with change in condition on the 24-hour nursing report}}$	Proportion Standard error = $\sqrt{p*(1-p)/n}$ 95% confidence interval

Descriptive statistics (proportions, standard errors, and 95% confidence intervals) were utilized to calculate the use of CS SBARs for proportion of completed documentation (all categories on the form completed) compared to number of CS SBARs used; proportion of CS SBARs utilized compared to number of times that CS SBAR was indicated for use as measured by the number of changes in resident condition on the 24 hour nursing report; proportion of CS SBARs fully completed compared to indication for use.

3.5.3 Research Question 3

3. What is the effect of the implementation of CS SBAR intervention on the outcomes:
 - 1) all-cause hospital admissions
 - 2) hospital admissions related to HF, pneumonia, and UTI

- 3) all-cause 30-day readmissions
- 4) 30-day readmissions for HF, pneumonia, and UTI

Table 10 Calculation and Statistical Analysis of Hospital Admissions and 30-day Readmissions

Independent Variable	Dependent Variable	Statistical Analysis
Condition-specific SBAR for all cause admissions, HF, pneumonia, and UTI	All cause admissions #transfers that result in admission for any cause **ADC for the 3 months	Difference between pre- and post-SBAR proportion using two-proportion z test: (p2-p1)/SE* Type I error rate = 0.05. Fisher's exact test
	Hospital admissions related to HF <u>#transfers HF, result in admission</u> # residents with HF	Difference between pre- and post-SBAR proportion using two-proportion z test: (p2-p1)/SE* Type I error rate = 0.05. Fisher's exact test
	Hospital admissions related to pneumonia <u>#transfers pneumonia, result in admission</u> # residents with pneumonia	Difference between pre- and post-SBAR proportion using two-proportion z test: (p2-p1)/SE* Type I error rate = 0.05. Fisher's exact test
	Hospital admissions related to UTI <u>#transfers UTI, result in admission</u> # residents with UTI	Difference between pre- and post-SBAR proportion using two-proportion z test: (p2-p1)/SE* Type I error rate = 0.05. Fisher's exact test
Condition-specific SBAR for all cause 30-day readmissions, HF, pneumonia and UTI	All cause 30-day readmissions #transfers that result in admission & previous admission for any cause within 30 days **ADC for the 3 months	Difference between pre- and post-SBAR proportion using two-proportion z test: (p2-p1)/SE* Type I error rate = 0.05. Fisher's exact test
	30-day readmissions for HF <u>#transfers HF result in admission & previous admission within 30 days</u> # residents with HF	Difference between pre- and post-SBAR proportion using two-proportion z test: (p2-p1)/SE* Type I error rate = 0.05. Fisher's exact test

*SE = $\sqrt{p * (1 - p) * [(1/n_1) + (1/n_2)]}$, where $p = (p_1 * n_1 + p_2 * n_2) / (n_1 + n_2)$

Table 10 Continued

	30-day readmissions for pneumonia <u>#transfers pneumonia result in admission & previous admission within 30 days</u> # residents with pneumonia	Difference between pre- and post-SBAR proportion using two-proportion z test: $(p_2 - p_1) / SE^*$ Type I error rate = 0.05. Fisher's Exact Test
	30-day readmissions for UTI <u># transfers for UTI result in admission & previous admission within 30 days</u> # residents with UTI	Difference between pre- and post-SBAR proportion using two-proportion z test: $(p_2 - p_1) / SE^*$ Type I error rate = 0.05. Fisher's Exact Test

* $SE = \sqrt{p * (1 - p) * [(1/n_1) + (1/n_2)] }$, where $p = (p_1 * n_1 + p_2 * n_2) / (n_1 + n_2)$

Differences in proportions between pre and post-intervention were measured to determine the utilization of CS SBAR and the effect of utilization on all-cause admissions, and acute care admissions for heart failure, pneumonia, and UTI; all-cause 30-day readmissions, and 30-day readmissions for HF, pneumonia, and UTI. Difference between the pre and post CS SBAR proportions was estimated using a two-proportion Z-test with a pooled proportion to compute a standard error. A type I error rate of .05 was used for all statistical comparisons.

4.0 RESULTS

The purpose of this study was to determine if use of CS SBAR tools when a change in resident status occurs in LTC will improve nurses' perception of nurse-physician communication and collaboration, and decrease the number of hospitalizations from LTC to acute care facilities. This chapter is organized as to the 3 research questions posed in chapter 1. The first compares the effect of the implementation on nurses' perception of the quality of nurse-physician communication and collaboration pre and post-implementation of CS SBARs; the second examines the utilization of CS SBARs; and the third measures the effect of CS SBARs on all-cause and condition-specific transfers to acute care, unplanned hospitalizations, and 30-day readmission rates.

4.1 NURSE PERCEPTION OF QUALITY OF NURSE-PHYSICIAN COMMUNICATION

For this one group pre/post quasi-experimental design a convenience sample of nurses was obtained from a 139-bed SNF in suburban Pittsburgh PA that provides skilled nursing, dementia, and post-acute care services. Twenty-seven RNs and 33 LPNs are employed by the facility. The pre-intervention group consisted of RNs (n=9) and LPNs (n=18) who graduated from an

accredited nursing program at least 6 months prior to completing the survey and had been employed at the facility for a minimum of 20 hours per week for at least 3 months. Since a pre/post-test design was used baseline characteristics of the nurses were controlled (Table 11).

Of the RNs, 78% (7/9) held diploma or associate degrees and 22% (2/9) earned bachelor degrees. Forty-four percent (4/9) had 1-10 years of LTC experience and 56% (5/9) had greater than 10 years experience. Thirty-three percent (3/9) had been in their current position less than 1 year while 22% (2/9) were in their current position 1-5 years, and 45% (4/9) had held their current position greater than 5 years.

Seventy-two percent (13/18) of the LPNs had technical school training. 22% (4/18) earned associate degrees, and 6% (1/18) held a Master's degree. Eleven percent (2/18) had less than 6 months LTC experience, 28% (5/18) had 1-10 years, and 61% (11/18) had greater than 10 years experience. Thirty-three percent (6/18) had been in their current position less than 1 year, 50% (9/18) 1-5 years, and 17% (3/18) had been in their current position greater than 5 years.

Table 11 Baseline Characteristics of Nurses Pre/Post CS SBAR Implementation

Characteristics	3 Month Pre-Implementation		3 Month Post-Implementation	
	RN (n=9)	LPN (n=18)	RN (n=1)	LPN (n=7)
Highest Education Achieved				
LPN	0	13	0	5
RN Diploma	4	0	0	0
Associates Degree Total	3	4	0	1
Nursing	3	1	0	1
Other	0	3	0	1
Bachelor's Degree Total	2	0	1	0
Nursing	1	0	1	0
Other	1	0	0	0
Master's Degree Total	0	1	0	0
Nursing	0	0	0	0
Other	0	1	0	0
Length of Time as a Nurse				
< 6 months	0	0	0	0
6 months-1 year	0	3	0	0
1-5 years	2	5	0	1
5-10 years	1	0	0	0
10-20 years	2	3	0	2
>20 years	4	7	1	4
Long-Term Care Experience				
< 6 months	0	2	0	0
6 months-1 year	0	0	0	0
1-5 years	2	3	1	1
5-10 years	2	2	0	0
10-20 years	2	6	0	3
>20 years	3	5	0	3
Time in Current Position				
< 6 months	0	0	0	0
6 months-1 year	3	6	0	2
1-5 years	2	9	1	3
5-10 years	2	1	0	1
10-20 years	1	1	0	1
>20 years	1	1	0	0
Number LTC Facilities Employed				
1	5	8	1	3
2	1	5	0	2
3	2	3	0	2
4	1	1	0	0
5	0	0	0	0
6	0	1	0	0
Ethnicity				
White	8	11	1	6
Hispanic	0	0	0	0
Black	0	4	0	0
Other	0	1	0	0
No Response	0	2	0	1

Given the high annual turnover rate of nurses common in LTC coupled with the hiring of new graduate nurses who were not eligible to participate in the pre/post LT Nurse-Physician Communication survey, the participant rate for RNs dropped from 9 pre-implementation to 1 post-implementation. The LPNs also declined from 18 to 7 pre and post-implementation respectively. Twenty nurses would have been required to participate pre and post-implementation to achieve an effect size of 0.75 at 80% power.

Item frequencies, mean scores and SD are listed in Table 12. Only fully completed surveys were included in the analysis. Wilcoxon signed rank non-parametric test was performed for all items. The only significant change from pre (n=26) to post (n=8) was “How often do you feel frustrated after an interaction with a physician?” ($p=.038$). This was a reverse scored item therefore, frustration increased after implementation of the CS SBARs. Given the high dropout rate, an ITT analysis was performed. The mean ITT post CSBAR total score was 66 (SD 9.3). Using Wilcoxon signed rank test for paired differences $Z=-.421$ ($p=.674$) there was no significant difference in mean total communication score pre to post-implementation CSBAR.

Table 12 Pre/Post CS SBAR Item Responses for Nurse-Physician Communication Survey: Frequencies
and Average Item Scores

Item	Scoring	Item Responses, n (%)					Item Average Pre N = 26 Post N=8 (Mean \pm SD)
		1	2	3	4	5	
How difficult or easy do you find it to talk openly with the physicians working with this nursing home?	1 (very difficult)- 5 (very easy)	0	1 (3.7)	7 (25.9)	10 (37)	9 (33)	4.0 \pm 0.9
		0	1 (3.7)	1 (3.7)	4 (14.8)	2 (7.4)	3.9 \pm 1.0
How difficult or easy do you find it to ask a physician for advice?	1 (very difficult)- 5 (very easy)	0	2 (7.4)	8 (29.6)	8 (29.6)	9 (33.3)	3.9 \pm 1.0
		0	1 (3.7)	1 (3.7)	5 (18.5)	1 (3.7)	3.8 \pm 0.9
How often is the information or advice you get from physicians relevant?	1(almost never)- 5 (always)	1 (3.7)	1 (3.7)	6 (22.2)	14 (51.9)	5 (18.5)	3.8 \pm 0.9
		0	1 (3.7)	4 (14.8)	3 (11.1)	0	3.3 \pm 0.7
How often would you say that physicians listen to what you have to say?	1(almost never)- 5 (always)	1 (3.7)	7 (25.9)	5 (18.5)	12 (44.4)	2 (7.4)	3.3 \pm 1.1
		0	1 (3.7)	3 (11.1)	4 (14.8)	0	3.4 \pm 0.7
How often do you find it enjoyable to talk to physicians?	1(almost never)- 5 (always)	2 (7.4)	4 (14.8)	9 (33.3)	11 (40.7)	1 (3.7)	3.2 \pm 1.0
		0	0	4 (14.8)	4 (14.8)	0	3.5 \pm 0.5
How often do you have difficulties understanding what physicians mean?*	1(almost never)- 5 (always)	8 (29.6)	9 (33.3)	7 (25.9)	2 (7.4)	0	3.9 \pm 1.0
		2 (7.4)	4 (14.8)	2 (7.4)	0	0	4.0 \pm 0.8

*Reversed Scored Item

Table 12 (continued)

Item	Scoring	Item Responses, n (%)					Item Average Pre N = 26 Post N=8 (Mean \pm SD)
		1	2	3	4	5	
How often would you receive correct information or advice from a physician?	1(almost never)- 5 (always)	1 (3.7) 0	3 (11.1) 0	5 (18.5) 3 (11.1)	15 (55.6) 5 (18.5)	3 (11.1) 0	3.6 \pm 1.0 3.1 3.6 \pm 0.5
How often do physicians have difficulties understanding what you mean?*	1(almost never)- 5 (always)	12 (44.4) 4 (14.8)	5 (18.5) 2 (7.4)	7 (25.9) 1 (3.7)	2 (7.4) 1 (3.7)	0 0	3.2 \pm 1.0 4.1 \pm 1.1
How open is the communication between nurses and physicians in this nursing home?	1 (none)- 5 (a lot)	1 (3.7) 0	3 (11.1) 2 (7.4)	5 (18.5) 3 (11.1)	16 (59.3) 3 (11.1)	2 (7.4) 0	3.6 \pm 0.9 3.5 \pm 1.3
How valuable do you find your contacts with physicians?	1 (none)- 5 (a lot)	1 (3.7) 0	2 (7.4) 1 (3.7)	5 (18.5) 2 (7.4)	16 (59.3) 1 (3.7)	3 (11.1) 4 (14.8)	3.7 \pm 0.9 4.0 \pm 1.2
How much understanding is there between nurses and physicians in this nursing home?	1 (none)- 5 (a lot)	1 (3.7) 0	1 (3.7) 1 (3.7)	8 (29.6) 1 (3.7)	15 (55.6) 5 (18.5)	2 (7.4) 1 (3.7)	3.6 \pm 0.9 3.8 \pm 0.9
How often do you feel angry after an interaction with a physician?*	1 (never)- 5 (almost always)	7 (25.9) 1 (3.7)	13 (48.1) 4 (14.8)	5 (18.5) 3 (11.1)	2 (7.4) 0	0 0	3.1 \pm 0.9 3.8 \pm 0.7

*Reversed Scored Item

Table 12 (continued)

Item	Scoring	Item Responses, n (%)					Item Average Pre N = 26 Post N=8 (Mean \pm SD)
		1	2	3	4	5	
How often do you feel satisfied after an interaction with a physician?	1 (never)- 5 (almost always)	1 (3.7)	4 (14.8)	4 (14.8)	14 (51.9)	4 (14.8)	3.6 \pm 1.1
		0	0	2 (7.4)	5 (18.5)	1 (3.7)	3.9 \pm 0.6
How often do you feel frustrated after an interaction with a physician?*	1 (never)- 5 (almost always)	5 (18.5)	13 (48.1)	6 (22.2)	2 (7.4)	0	3.8 \pm 0.9
		0	2 (7.4)	5 (18.5)	1 (3.7)	0	3.1 \pm 0.6
How often do you feel misunderstood after an interaction with a physician?*	1 (never)- 5 (almost always)	7 (25.9)	10 (37)	5 (18.5)	4 (14.8)	0	3.8 \pm 1.0
		2 (7.4)	2 (7.4)	4 (14.8)	0	0	3.8 \pm 0.9
How often do you feel pleased after an interaction with a physician?	1 (never)- 5 (almost always)	0	3 (11.1)	8 (29.6)	13 (48.1)	2 (7.4)	3.5 \pm 0.8
		0	1 (3.7)	2 (7.4)	5 (18.5)	0	3.5 \pm 0.8
How often do you feel dissatisfied after an interaction with a physician?*	1 (never)- 5 (almost always)	4 (14.8)	13 (48.1)	7 (25.9)	2 (7.4)	0	3.7 \pm 0.8
		0	6 (22.2)	2 (7.4)	0	0	3.8 \pm 0.5
How often do you feel respected after an interaction with a physician?	1 (never)- 5 (almost always)	2 (7.4)	4 (14.8)	7 (25.9)	8 (29.6)	5 (18.5)	3.4 \pm 1.2
		0	2 (7.4)	4 (14.8)	0	2 (7.4)	3.3 \pm 1.2
						Total Pre/Post/ ITT Mean/SD	66.5 \pm 9.6 65.8 \pm 9.9 66 \pm 9.3

*Reversed Scored Item

4.2 CONDITION-SPECIFIC SBAR UTILIZATION

The CS SBARs were implemented throughout the nursing facility as the standard of care.

4.2.1 Use of Each Condition-Specific SBAR

The most frequently used CS SBARs were for falls, skin integrity, and miscellaneous, the generic CS SBAR for conditions not addressed by the other 8 CS SBARs (Table 13). In the miscellaneous CS SBAR category, 40/41 forms were completed for cases of fatigue and musculoskeletal conditions that were not a result of a fall. The remaining miscellaneous category form was used for a change in cardiac condition despite the availability of a cardiac-specific form.

Table 13 Number of Each Condition-Specific SBAR Used May through July 2015

CS-SBAR Form	May	June	July	Total CS SBARs Used
Cardiac	1	2	1	4
Respiratory	5	2	1	8
Change in Mental Status	8	2	2	12
Falls	40	26	32	98
Skin Integrity	20	5	9	34
GI	0	1	2	3
Change in Fluid/PO Intake	1	0	0	1
Fever Unknown Origin	1	1	2	4
Miscellaneous	19	11	11	41
Total	95	50	60	205

4.2.2 Correctly Completed Condition-Specific SBARs

The completed CS SBARs were reviewed by the DON for accuracy of documentation, and independently by the researcher for level of completeness (all forms were de-identified for the researcher). The CS SBARs for all transfers were reviewed by the DON, program manager, and nurse who completed the form. Two hundred and five CS SBARs were completed during the 3 months post-implementation (Table 14). Of those, 204 (99.5%) were completed fully and correctly. The one that was not completed accurately was due to using the miscellaneous CS SBAR for a change in cardiac condition.

4.2.3 Use of Condition-Specific SBAR when Indicated

Of the indications that a CS SBAR was not used, 1 transfer occurred when the provider assessing the resident decided to transfer the resident to acute care and 1 was a resident who was outside of the facility and was transferred by the family. When indicated, 204 (92%) of CS SBARs were fully and accurately completed (Table 14). Of the indications for use over the 3 month period, 17 (8%) did not have a CS SBAR.

Table 14 Number of CS SBARs Used Compared to Number Indicated

	CS SBAR Use (n)	Proportion (%)	95% Confidence Interval
Total Number of CS SBAR Indicated	222		
Total Number CS SBARs Completed	205	92.3	(88.0-95.5)
Number of CS SBARs Correctly Completed Compared to Total Number Used	204	99.5	(97.3-100)
Total Number of CS SBAR Indications without CS SBAR completed	17	8.3	(4.9-12.9)
Number of CS SBARs Correctly Completed Compared to Number Indicated	204	92	(87.4-95.1)

Number of CS SBAR completed % of Number CS SBAR Indicated=Total Number CS SBARs Completed/Total Number Indications for CS SBAR*100

Number of Correctly Completed CS SBARs% of Number of CS SBARs used=Number Correctly Completed CS SBARs/Number of CS SBARs used *100

Number of Indications without Completed CS SBAR % of Number Indicated=Total Number Indications without CS SBAR/Total Number Indicated*100

Number of CS SBARs Correctly Completed Compared to Number Indicated= Number CS SBARs Correctly Completed/Number Indicated*100

4.3 EFFECT OF CONDITION-SPECIFIC SBARS UTILIZATION ON TRANSFERS, UNPLANNED ADMISSIONS, AND 30-DAY ALL CAUSE READMISSIONS TO ACUTE CARE

Transfer data and outcomes were collected using the INTERACT Quality Improvement Tool for Review of Acute Care Transfers. The form was completed for each transfer to acute care by the DON, program manager, and nurse involved (Appendix E). If the resident did not return to the

facility, the DON contacted the acute care hospital to establish diagnosis and outcome. All acute care transfers were reviewed at the facility's QI Committee meeting. In addition to monitoring resident transfers, this process also was used to determine as a team if the transfers, hospitalizations, and 30-day re-admissions were potentially avoidable.

4.3.1 Transfers to Acute Care

There was a significant reduction in overall transfers to acute care (19.8%) ($p=.011$) post CS SBAR implementation. There also was a significant reduction in transfers to acute care specifically for pneumonia (35%) ($p=.001$). Although seasonal variation could have attributed to the reduction of transfers for pneumonia, more residents were diagnosed with pneumonia in the post-implementation phase (May, June, and July 2015) than the pre-implementation phase (February, March, April 2015) (Table 16). Furthermore, overall avoidable transfers (16%) ($p=.001$) were significantly reduced post CS SBAR implementation (Table 16).

Table 15 Average Daily Census and Number of Residents with Conditions Pre and Post-Implementation

Number of Residents with Conditions	Pre CS SBAR	Post CS SBAR
Monthly average resident census	131	131
3 month total number of residents with each condition:		
1. Heart Failure	180	148
2. Pneumonia	17	23
3. UTI	31	24
4. Falls	156	158
5. Skin Infection	14	19
6. Sepsis	7	3
7. C. Diff	12	10

Table 16 Pre and Post Comparison of Overall, Condition, and Avoidable Transfers to Acute Care

Event	3 Month Pre- Implementation n(%)	3 Month Post- Implementation n(%)	Difference in proportion	95% Confidence Interval	p-value
Total Transfers	58 (44%)	32 (24%)	19.80%	(8.6, 31.1)	0.001
Heart Failure	4 (2%)	0	2.2%	(.07, -4.3)	*0.13
Pneumonia	9 (53%)	4 (17%)	35.0%	(7.2, 63.9)	0.014
UTI	1 (3%)	2 (8%)	-5.1%	(-17.7, -7.6)	0.430
Falls	6 (4%)	10 (6%)	-2.4%	(-7.3, -2.4)	0.317
Skin Infection	2 (14%)	1 (5%)	9.0%	(-11.9, -29.9)	0.398
Sepsis	3 (43%)	2 (67%)	24.0%	(-23.8, -40.9)	0.471
C. Diff	1 (8%)	0	8.3%	(-7.3, -23.9)	0.296
Avoidable Transfers	34 (59%)	13 (41%)	16%	(6.9, 25.1)	0.001

Total Transfers=Number of Transfers to Acute Care/Average Daily Census (ADC)

Transfers %=Number of Transfers to Acute Care/ADC *100

Transfer by Condition %=Transfer by Condition/Total Number Residents with Condition Transfers*100

Avoidable Transfers %=Avoidable Transfers/Total Transfers to Acute Care

*P-value derived from exact approximation method due to small sample size

4.3.2 Unplanned Hospitalizations

Overall unplanned admissions to acute care (15.2%) ($p=.004$) were significantly reduced post-implementation, however, no specific conditions were significantly reduced. There was also a significant reduction in avoidable hospital admissions (10.70%) ($p=.003$) (Table 17).

Table 17 Pre and Post CS SBAR Implementation Comparison of Overall, Condition, and Avoidable Hospitalizations

Event	3 Month Pre-Implementation	3 Month Post-Implementation	Difference in proportion	95% Confidence Interval	p-value
Total Hospital Admissions	44 (33.6%)	24 (18.3%)	15.2%	(4.8, 25.7)	0.004
Heart Failure	4 (2%)	0	2.2%	(.07, -4.8)	0.13*
Pneumonia	6 (35%)	4 (17%)	17.9%	(-9.6, -45.3)	0.202
UTI	1 (3%)	1 (4%)	-0.9%	(-11.1, -9.2)	0.856
Falls	3 (2%)	6 (4%)	-1.9%	(-5.5, -1.8)	0.318
Skin Infection	2 (14%)	1 (5%)	9.0%	(-11.8, -29.9)	0.398
Sepsis	3 (43%)	2 (67%)	-23.8%	(-88.5, -40.9)	0.471
C. Diff	1 (8%)	0	8.3%	(-7.3, -24.0)	0.296
Avoidable Admissions	20 (45%)	6 (25%)	10.70%	(3.6, 17.8)	0.003

Total Unplanned Admissions=Total Unplanned Admissions/ADC

Total Unplanned Admissions %=Number of Transfers Resulting in Unplanned Hospital Admissions/ADC*100

Unplanned Admission by Condition %=Admissions by Condition/Total Number of Residents with Condition*100

Avoidable Admissions %=Avoidable Unplanned Admissions/Total Unplanned Hospital Admissions

*P-value derived from exact approximation method due to small sample size

4.3.3 30-Day All Cause Readmissions

Overall 30-day all cause readmissions (8.4%) ($p=.011$) were significantly reduced. There was no significant reduction in specific conditions 30-day readmissions post CS SBAR implementation (Table 18).

Table 18 Pre and Post Comparison Overall and by Condition 30-Day Readmission

Event	3 Month Pre-Implementation	3 Month Post-Implementation	Difference in proportion	95% Confidence Interval	p-value
Total Hospital 30-Day Readmissions	16 (12%)	5 (4%)	8.4%	(1.9, 14.9)	0.011
Heart Failure	3 (2%)	0	2%	(-2, -3.5)	0.258*
Pneumonia	1 (6%)	1 (4%)	2%	(-12.4, -15.4)	0.829
UTI	0	1 (4%)	-4%	(-12.2, -3.8)	0.307
Falls	1 (0.6%)	0	0.6%	(-6, -1.8)	0.316
Skin Infection	1 (7%)	0	7.1%	(-6.3, -20.6)	0.299
Sepsis	1 (14%)	1 (33%)	19%	(-78.4, -40.3)	0.529
C. Diff	1 (8%)	0	8.3%	(-7.3, -24.0)	0.296

30-Day All Cause Readmission=Number of All Cause Unplanned Hospital Admissions with a Hospital Admission in the past 30 days/ADC

Total 30-Day All Cause Readmissions %=30-day Readmissions/ADC*100

30-Day Readmissions by Condition %=Condition/Total Number of Residents with Condition*100

*P-value derived from exact approximation method due to small sample size

Difference in proportion pre and post-intervention was measured for the use of CS SBAR and the effect on acute care transfers, admissions, and 30-day all cause readmissions overall and for specific conditions.

There were no significant changes for transfers, admissions, and readmissions for HF, UTI, falls, skin infection or other skin changes not associated with infection, sepsis, C. diff, gastrointestinal conditions, cerebrovascular accidents, and behavioral health conditions. For the specific conditions, the transfer, admission, and readmission sizes were small making detecting a change difficult.

4.3.4 Potential Savings When Overall and Avoidable Transfers, Unplanned Admissions and 30-Day Readmissions Are Prevented

For this study, savings were realized for overall transfers, hospital admissions, and 30-day readmissions. The greatest gains were in preventing avoidable unplanned hospitalizations and 30-day readmissions.

Table 19 Savings when Avoidable Transfers without Admission are Prevented

Hospital Payment Patient >65 years Per Emergency Room (ED) Episode Without Admission	SNF Lost Revenue Per Episode Any Cause	Avoidable ED Episode Without Admission for Any Cause		Total Expense for Avoidable ED Visits Without Admission for Any Cause Pre/Post Implementation		Potential Overall Savings Pre/Post Implementation
		Pre	Post	Pre	Post	
\$884	\$0	12	5	\$10,608	\$4,420	\$6,188

(Mirel & Carper, 2014)

Total Expense Avoidable ED Without Admission=Hospital Payment ED Visit*Number Avoidable ED Visits without Admission

Potential Overall Savings when Avoidable ED Without Admission is Prevented=Total Expense Pre-Implementation-Total Expense Post-Implementation

Table 20 Savings when Unplanned Hospitalizations without 30-Day Readmissions Are Prevented

Medicare Average Hospital Payment per Inpatient Episode	Medicaid Average Hospital Payment per Inpatient Episode	Blended Hospital Payment Per Episode	SNF Lost Revenue Per Episode Any Cause	Hospital Admissions for Any Cause Without a 30- Day Readmission Pre/Post Implementatio n		Total Expense for Admissions for Any Cause Without a 30-Day Readmission Pre/Post Implementation		Potential Overall Savings Pre/Post Implementation
				Pre	Post	Pre	Post	
\$12,200	\$6,500	\$9,350	\$3,611	28	19	\$160,692	\$109,041	\$51,651

(Barrett et al., 2015; CMS, 2015e)

Lost Payment to SNF per Episode=SNF Per Diem Urban Rate*ALOS (\$768.39*4.7= \$3,611)

Total Expense Hospital Admission Without 30-Day Readmission=(Hospital Payment-Loss Payment to SNF)

*(Number Admissions Without 30-Day Readmission)

Potential Overall Savings when Hospitalization Without 30-Day Admission is Prevented=Total Cost Pre-Implementation-Total Cost Post-Implementation

Table 21 Savings when 30-Day Readmissions Are Prevented

Average All Cause Index Hospital Payment	Average 30- Day All Cause Readmission Payment	Total Index and 30-Day All Cause Readmission Episodes	SNF Lost Revenue Per Episode Any Cause	30-Day Readmission for Any Cause		Total Expense for 30- Day All Cause Index and 30-Day Readmission Episodes Pre/Post Implementation		Potential Overall Savings Pre/Post Implementation
				Pre	Post	Pre	Post	
\$11,300	\$13,050	\$24,350	\$7,222	16	5	\$274,048	\$85,640	\$188,408

(Barrett et al., 2015; CMS, 2015e)

Lost Payment to SNF per Episode= (SNF Base Rate*ALOS)*2

\$768.39*4.7)*2=\$7,222

Total Expense 30-Day Readmissions=[(Index Hospital+30-Day Readmission Payment)-Loss Revenue to SNF)]*(# 30-Day Readmissions)

Potential Overall Savings when 30-Day Readmission Prevented=Total Cost Pre-implementation-Total Cost Post-implementation

Table 22 Savings when Avoidable Hospitalizations are Prevented

Medicare Average Hospital Payment per Inpatient Episode	Medicaid Average Hospital Payment per Inpatient Episode	Hospital Payment Per Episode	SNF Lost Revenue Per Episode Any Cause	Avoidable Hospital Admissions for Any Cause		Total Expense for Avoidable Admissions for Any Cause Pre/Post Implementation		Potential Overall Savings Pre/Post Implementation
				Pre	Post	Pre	Post	
\$12,200	\$6,500	\$9,350	\$3,611	13	4	\$74,607	\$22,956	\$51,651
Average All-Cause Index Hospital Payment	Average 30- Day All- Cause Readmission Episodes	Total Index and 30-Day All-Cause Readmission Episodes	SNF Lost Revenue Combined Episodes of Care	Number 30- Day Readmission for Any Cause		Total Expense for 30- Day All Cause Index and 30-Day Readmission Episodes Pre/Post Implementation		Potential Overall Savings Pre/Post Implementation
				Pre	Post	Pre	Post	
\$11,300	\$13,050	\$24,350	\$7,222	7	2	\$119,896	\$34,256	\$85,640
	Total Saving Avoidable Hospitalizations Prevented					\$194,503	\$57,212	\$137,291

(Barrett et al., 2015; CMS, 2015e)

Lost Payment to SNF per Episode=SNF Base Rate*ALOS (\$768.39*4.7= \$3,611)

Lost Payment to SNF when 30-day Readmission=(SNF Base Rate*ALOS*2)=\$768.39*4.7*2=\$7,222

Total Expense Avoidable Hospital Admissions=(Hospital Payment-Lost Payment to SNF)*(Number-Avoidable Admissions)

Total Expense Avoidable Hospitalization with 30-day Readmission=(Hospital Payment-Lost Payment to SNF)*Number Avoidable Hospitalizations with 30-day Readmission

Potential Overall Savings when Avoidable Hospitalization is Prevented=Total Cost Pre-Implementation-Total Cost Post-Implementation

5.0 DISCUSSION

Not only do transfers, unplanned hospital admissions, and 30-day readmissions from LTC to acute care account for \$867 billion in healthcare expenditures yearly but up to 67% of the hospitalizations and up to 76% of hospital readmissions are avoidable (CMS, 2012; Hackbarth et al., 2007; Herndon et al., 2011). As the ACA evolves, new reimbursement models such as VBP, tying reimbursement to quality measures; and bundled payments, one payment for an episode of care that will be shared among healthcare providers, will be implemented with the goal of improving quality and decreasing cost by making both acute care and SNFs accountable for providing quality care in the most appropriate setting (CMS 2015f).

A major reason identified as a contributing factor to avoidable transfers to acute care is lack of effective nurse-physician communication (IOM, 2001; Ouslander et al., 2010). Suboptimal communication between nurses and physicians often occurs because of the difference in how both professions are taught during their educational programs to interact with each other. Nurses are taught to be descriptive, the eyes and ears for the physician, whereas physicians are taught a structured and succinct form of communication (Renz et al., 2013).

To this end, the purpose of this one group quasi-experimental pre/post pilot study was to determine if implementing a SBAR tool that is specific to the most common changes in

condition in LTC improves nurse perception of the quality of nurse-physician communication and if the number of acute care hospitalizations decreases.

This study addressed three questions: 1) Does using CS SBARs improve the nurse perception of nurse-physician communication; 2) What is the utilization of CS SBARs; 3) Does using CS SBARs decrease acute care hospitalizations from LTC?

5.1 NURSE PERCEPTION OF QUALITY OF NURSE-PHYSICIAN COMMUNICATION AND COLLABORATION

In this study, the LT Nurse-Physician Communication Scale developed by Ingrid Schmidt, PhD (2002) was used to assess the nurses' perception of the quality of nurse-physician communication and collaboration pre and post-implementation of CS SBAR. The survey was administered 2 weeks prior to and 3 months post-implementation of the CS SBARs. Unfortunately, annual nurse turnover rates in LTC are high, 50% for RNs and 36.4% for LPNs (ACHA, 2014). At the time of this study this SNF experienced turnover rates similar to the national average. In addition, the hiring of new graduate nurses limited the size of eligible nurses for the participation in the survey. The convenience sample of RNs decreased from 9 pre-implementation to 1 post-implementation and the LPN group declined from 18 to 7 respectively. Due to the high nursing turnover rates adequate power was not achievable to measure perception of quality of nurse-physician communication with confidence. Frustration was the only item with a significant change, an increase post-implementation ($p=.04$). An ITT analysis and the

Wilcoxon signed rank test showed no significant change pre and post-implementation for overall mean ($p=.674$).

Although the statistical analysis was unreliable, anecdotal comments were made during the post-implementation period:

- The CS SBARs are much easier to complete (nursing staff)
- I don't have to think about what I need to gather. It is right there for me (nursing staff)
- I feel more organized and confident when I talk with a physician (nursing staff)
- When the nurse called, she did not have the CS SBAR completed. I asked her to complete it and call me back (physician)
- I really believe that the nurses are identifying problems earlier (director of nursing)

5.2 CONDITION-SPECIFIC SBAR UTILIZATION

Organization and succinct, confident communication of information by nurses have been found to enhance nurse-physician communication (Renz et al., 2013; Manojlovich & Antonakos, 2008). The hypothesis that CS SBARs would enhance nurses' ability to effectively organize and communicate pertinent information when a resident has a change in condition is supported by this study. Despite the rates of turnover and the hiring of new graduate nurses, which would be expected to decrease the use of CS SBARs, 205 forms were completed over a 3 month period, 92% ($n=217$) of the time when indicated and 99% ($n=204$) were correctly and fully completed.

One miscellaneous CS SBAR was completed when a cardiac CS SBAR would have been applicable.

Comparable studies of SBAR use in LTC are limited. One case study by Renz and colleagues (2013) looked at the utility of INTERACT 2.0 SBARs in LTC. SBARs (n=65) were reviewed over a 3 month period. The completion rate, defined as all elements completed, was 78%. The version of the INTERACT SBAR reviewed for this study was 2 pages long. The current 4.0 version, is 4 pages long, and requires the nurse to discern what information is pertinent to gather and assess prior to reporting to physicians (Appendix B). CS SBARs are 1 page for the clinical assessment, gathering and organizing of data of specific changes in condition. The high percentage of use and accuracy of completion indicates that the CS SBARs are easy to use when resident condition changes.

In addition to clinical assessment and communication, the CS SBAR development, implementation and monitoring provides a rich environment for applying quality improvement strategies. The forms are a culmination of input from LTC medical directors, geriatricians, primary care physicians and nurse practitioners who work in LTC, and most importantly, nurses including directors of nursing, RNs and LPNs. Developing a small team with representation from leadership to frontline staff and using process mapping to determine how the CS SBARs would be used provided standardization and clarity throughout the organization. After implementation, the CS SBARs were used to identify quality improvement opportunities such as prevention of falls. The tools were used to follow the trajectory of transfers, hospitalizations, and re-admissions and were used in conjunction with the INTERACT Quality Improvement Transfer Tool to Review Acute Care Transfers (Appendix E) to perform a RCA of all transfers. This is not only valuable for current quality improvement efforts but it also provides a foundation for the Quality Assurance and Process Improvement Program (QAPI) that all LTC facilities will be required to implement in the near future.

An added benefit is that the cost to the SNF to implement the CS SBARs is minimal. The implementation planning required 2 meetings lasting 45-60 minutes and included the DON, educator, and program managers. In addition to the core group, the first meeting included one senior vice president and the second included 2 staff RNs and 2 LPNs. The education can be provided in 15 minute huddles on the nursing units or at regular staff meetings. New nurses can be educated during the orientation process. The cost of maintaining the forms is the cost of paper and use of a color printer. Forms can be printed either by a unit clerk or centrally if the organization has multiple facilities. As facilities implement EMRs, they have the opportunity to build them into the system during the planning stages, eliminating or greatly minimizing expense.

5.3 EFFECT OF UTILIZATION OF CONDITION-SPECIFIC SBAR ON TRANSFERS, UNPLANNED ADMISSIONS, AND 30-DAY READMISSIONS TO ACUTE CARE

Ouslander and colleagues found an average of 17% decrease in hospital admissions in 25 nursing homes in 3 states over a 6 month period compared to 1 year prior. In addition, the facilities self-reported their level of engagement and were assigned a score by the project coordinator at the end of the study. Those highly engaged had a 24% reduction, those not engaged a 6% reduction, and the control group had a 3% reduction (Ouslander et al., 2011). The entire INTERACT program was the intervention for the study. Although none of the facilities implemented the entire program, the study did not specifically target SBAR. It is unclear as to which components

of INTERACT attributed to the decrease in hospitalizations. During the 3 month post-implementation of the CS SBARs in this study, overall transfers to acute care, unplanned hospitalizations, and 30-day readmissions were significantly reduced. Furthermore, when a transfer or admission did occur, it was more likely to be unavoidable, indicating that the resident was more likely to receive care in the appropriate setting.

Potential Medicare and Medicaid savings for reduction in transfers, admissions, and 30-day readmissions in this study was \$246,247 of which \$137,291 was saved by preventing avoidable transfers, hospitalizations and 30-day readmissions. However, the goal is not to totally eliminate transfers and hospital admissions, but to have the resident receive quality care in the most appropriate setting, if the results of this study can be replicated throughout facilities in the United States, cumulative savings would incur.

5.3.1 Transfers to Acute Care

Post-implementation of the CS SBARs significantly reduced transfers to acute care and when a transfer did occur, it was more likely to be unavoidable. By reducing avoidable transfers without hospital admission, the Medicare and Medicaid total savings was \$6,188.

The only specific condition that was significantly reduced was transfers for pneumonia. At initial glance this could be attributed to seasonal variations since the pre-implementation period was February, March, and April 2015 and post-implementation was May, June, and July 2015. However, more residents were diagnosed with pneumonia during the post-implementation period and yet the number of transfers was decreased. All other specific conditions that the number of SNF residents with the diagnosis could be ascertained: HF, UTI, falls, skin infections

and other skin infections not involving an infection, GI symptoms, C. diff, and sepsis did not have any significant reduction in transfers, hospitalizations, 30-day readmissions. The small sample size of each condition makes detecting a difference difficult.

5.3.2 Unplanned Hospital Admissions

Hospital admissions were also significantly reduced with a potential savings of \$51,651. When they occurred post-implementation they were more likely to be unavoidable, indicating that residents were more likely to receive care in the appropriate setting when CS SBARs were used. Interestingly, 4 of the 6 avoidable hospitalizations post CS SBAR implementation did not have a CS SBAR completed suggesting that the completion of a CS SBAR may have further reduced avoidable hospitalizations. No specific conditions were found to be significantly reduced, most likely due to small sample size. Studying CS SBAR use in multiple facilities would be helpful to identify conditions that may result in avoidable hospitalizations.

5.3.3 Thirty-Day All Cause Readmissions

Thirty-day all-cause readmissions were also significantly reduced post CS SBAR implementation. Review of the data identified that except for 1 post-implementation, all 30-day readmissions pre (n=16) and post (n=5) CS SBAR implementation were from PAC and within the 30 days post initial hospital discharge. This finding has implications for further exploration as to whether acute care hospitals are transferring patients for PAC services at the appropriate time.

Potential savings for preventing 30-day readmissions in the 3 month period of CS SBAR use was \$188,408. Index hospitalizations have been found to be more expensive than hospitalizations that do not result in a 30-day readmission (Barrett et al., 2015). Furthermore, the highest 30-day readmission rates occurred in Medicare beneficiaries and the uninsured (Barrett et al., 2015). A review of the health status of the residents prior to the index hospitalization would be helpful to identify trends and/or resident characteristics that may predict those at risk for index hospitalizations and 30-day readmissions. The SNF does not assess as to whether 30-day readmissions are avoidable but given the number of readmissions from PAC, it warrants further investigation.

5.4 SUMMARY

Both the utilization of CS SBARs and the reduction in overall transfers, unplanned admissions, and 30-day readmissions from LTC to acute care support further investigation of the use of CS SBARs.

INTERACT is the only model to date that has been develop to reduce avoidable transfers from LTC to acute care. Only one study by Renz (2013) has looked at the INTERACT SBAR. The 92% use of CS SBARs when indicated and the 99% correct and fully completed CS SBARs indicates the ease of use to complete the forms and the ability to use when appropriate.

In addition to efficient and effective clinical assessment, the CS SBARs were useful in the quality improvement analysis. The nursing facility used them in conjunction with the INTERACT Quality Improvement Tool to Review Acute Care Transfers process to identify

quality improvement opportunities and to assess transfers and hospitalizations for appropriateness.

The significant reduction in overall transfers, unplanned admissions, and 30-day readmissions from LTC to acute care after implementation of the CS SBARs shows promise that the use of the tools may reduce inappropriate resident transfers to acute care. In addition, when transfers did occur, they were more likely to be unavoidable indicating that residents were more likely to receive care in the appropriate setting.

5.5 RECOMMENDATIONS AND LIMITATIONS

Although the results of this pilot study are promising and warrants further research, there were several limitations.

5.5.1 Nurse Perception of Nurse-Physician Communication and Collaboration

The high turnover nursing rate in LTC impeded the ability to confidently assess the nurse perception of the quality of nurse-physician communication and collaboration. Although a challenge, a larger sample size would help to overcome the barriers in this study. Given the high annual turnover rates in LTC, drop out is a threat making it difficult to have a 2-group study design. Studying multiple facilities would be beneficial for future studies.

5.5.2 Utilization of Condition-Specific SBARs

Initially, the method for identifying indications for CS SBAR use was to maintain a phone log using hash marks to document the number of calls to physicians. This was not a useful tool for 2 reasons: the staff was not able to maintain the log, and the log was not useful in determining whether the calls were due to change in resident condition or if they were calls for other reasons such as medication refills. Since all changes in resident condition are maintained on a 24-hour nursing report, review of the reports by the director of nursing (to maintain HIPAA compliance) was more accurate than tracking calls to physicians for resident change in condition. The 24-hour nursing report also provided a useful mechanism to be able to match the CS SBAR to the specific indication for use.

5.5.3 Transfers to Acute Care

In this study, the INTERACT Quality Improvement Tool for Review of Acute Care Transfers was used to assess all transfers to acute care. This tool was useful in standardizing how transfers were assessed and in following events from the identification of the change in condition through 30-day readmission period. A limitation that was encountered is that there was not a process in place to assess with confidence whether 30-day readmissions were avoidable. There is an added complexity to the assessment as obtaining accurate and complete information from hospitals is sometimes difficult and there are times when the resident may not return to the facility. Although the director of nursing followed up on all hospitalizations of residents with the hospital, determining the appropriateness of the 30-day readmission was not consistently possible. However, given the

high number of 30-day readmissions from PAC that occurred within the 30 days of the initial hospital discharge, establishing processes to obtain more in depth readmission data is important for future research. The accountable care organization structure and 30-day readmissions implemented in acute care and slated to be used as a quality measure by CMS for LTC may provide more structure and motivation to develop comprehensive assessment processes for readmissions.

5.5.4 Payment

There were several limitations to calculating potential savings for reduction in transfers, hospitalizations, and 30-day readmissions. The first is that Medicare is a small source of reimbursement for LTC services. LTC is currently a self-pay driven industry. Therefore, costs to Medicare for avoidable transfers and hospitalizations of residents may be assigned to the resident and/or caregivers. For example, when a resident is admitted to the hospital the norm in LTC is for the SNF to charge a self-pay rate to hold the bed until the resident returns to the facility. For this study, calculating potential savings for reducing transfers and hospitalizations, the potential lost revenue to the SNF was deducted making savings estimates conservative. The potential lost revenue did not reflect this additional source of payment.

Payer mix for transfers at this facility was not available to the researcher to include in the study and therefore, financial calculations could not be based on the percentage of Medicare and Medicaid revenue paid to the facility.

As new payment models emerge and are being studied as innovation projects, some facilities are currently participating in current VBP and bundled payment initiatives. Finding

current and accurate reimbursement benchmarks is a challenge. Payment distribution is not yet determined so using current Medicare and Medicaid reimbursement may not hold true in the future.

5.5.5 General Study Limitations

This study was a one group pre/post-test design in a natural setting. The setting limits the ability to control for confounding variables. The pre/post design helps to control for extraneous variables, however, due to the high nursing turnover rates, an inadequate sample size prevented confident assessment of nurse perception of nurse-physician communication.

Another limitation is the one facility setting. Generalizing the findings is difficult but given the promising results, further study in multiple facilities is warranted.

5.6 FUTURE RESEARCH

The findings from this pilot study support the value of further research in multiple facilities to ascertain if the findings can be replicated. In addition, larger sample sizes may help to identify and assess the impact of specific conditions on avoidable transfers and hospitalizations.

Further research also needs to be conducted to assess the impact on nurse-physician communication. Although this study was intended to focus on nurse perception, physician perception of nurse-physician communication is also an important area to study as well as other members of the interdisciplinary team perceptions such as physical therapists, pharmacists, and

including families/caregivers. As interdisciplinary teams become more common, the data supports that both transfers to acute care and sentinel events can be attributed to poor communication between nurses and physicians (Joint Commission, 2013; Narayan, 2013). The importance of developing communication skills of all healthcare clinicians that will provide consistent communication will be essential in reducing avoidable transfers.

As quality measures are tied to reimbursement, there will be more of an impetus to implement technology such as EMRs into SNFs. Studying the impact of technology on the use of CS SBARs, the impact on nurse-physician communication, and transfers to acute care will be an important area of research.

As new payment models are implemented for both acute care and SNFs, calculation of financial savings to the healthcare system will need to be reassessed to establish the impact of the reimbursement models on LTC and acute care services. With the implementation of ICD-10 on October 1, 2015, changes to the MDS 3.0 item set will be effective October 1, 2016 to reflect items that tie reimbursement to quality measures. Functional abilities such as self-care, ability to eat with suitable utensils, ability to maintain toileting hygiene, and mobility will be assessed on admission and at end of stay to SNF using expanded items that are consistent with the new ICD-10 codes (CMS, 2015f).

Another important area that will need to be further investigated is use of the CS SBARs in relation to the outcomes of the 6 qualifying conditions. It is hypothesized that the early identification and communication of change in status for the six qualifying conditions will be enhanced with CS SBAR use.

5.7 CONCLUSION

The INTERACT model is the only model in place that addresses transfers from LTC to acute care. It is an entire quality improvement package of which SBAR is one component. The current INTERACT 4.0 SBAR is generic and 4 pages long requiring nurses to complete a long and generic document which may impede their ability to efficiently and effectively gather pertinent information when there is a change in resident condition. The CS SBAR is 1 page for clinical assessment and for obtaining pertinent data such as diagnostic studies that need to be reported. Furthermore, the tools are structured to be read in the order that the physician processes information.

Although this study focused on perception of quality of communication and transfers, unplanned admissions, 30-day readmissions, several unanticipated learnings and outcomes were identified. One was the use of CS SBAR tools by leadership and the quality improvement committee to review the resident trajectory when a change in condition occurred. The tool provided a mechanism to assist in the identification of individual and system-wide quality improvement opportunities. Another positive finding was the high rate of use and completion rates. Especially given the high nursing turnover rates, sustaining the use of the tools was a potential challenge. The SNF leadership overcame this threat by implementing the entire package of CS SBARs throughout the facility as the standard of care and by incorporating education of all new nurses on how to use the CS SBARs into the orientation program.

Although further study is needed to generalize the results, the findings from this pilot study show promise in reducing avoidable transfers and acute care hospitalizations, including 30-day readmissions. Additional research to assess nurse and physician perception of quality of

nurse-physician communication is needed. Also, as new reimbursement models evolve, financial savings will need to be reassessed.

This initial study suggests that using CS SBARs when a change in resident condition occurs not only reduces transfers/hospitalizations/30-day readmissions, but when transfers did occur, they were more likely to be unavoidable, suggesting that residents were more likely to receive appropriate care in the most appropriate setting. All 30-day readmissions except one were from post-acute care and were related to the initial hospital discharge diagnosis, suggesting that perhaps acute care transfers to LTC are not occurring at the optimal time.

Conducting large scale studies is warranted to determine if results of this pilot study can be replicated and to assess if specific diagnoses are impacted by CS SBAR utilization.

APPENDIX A.

OPERATIONAL DEFINITION OF TERMS

Admissions refers to unplanned transfers from LTC facility to acute care that result in hospital admission.

All-cause admission refers to any unplanned admission for any cause

Avoidable hospitalization refers to unplanned hospitalizations that could be prevented by early intervention but require hospitalization once they occur, conditions treatable by competent clinical staff at the LTC facility, and care that neither improves quality of life

Fully completed CS SBAR refers to all categories pertinent to the change in resident status of the SBAR form are completed

Long-term Care refers to facilities such as nursing homes and skilled nursing facilities that provide healthcare to people who are unable to manage independently in the community. This care may represent custodial or chronic care management or short-term rehabilitative services (CDC, 2013).

Nurses refers to licensed nursing staff that includes RNs and LPNs. Both levels of staff are included as both RNs and LPNs may communicate with physicians/advanced care provider when there is a resident change in status.

Nurses' Perception of Quality of Communication and Collaboration with Physicians refers to the nurses' assessment of the quality of the experience of communicating with physicians when resident status changes as measured by the Long-term Care Nurse Perception of Quality of Nurse-Physician Communication Scale

Readmission refers to admission to the hospital that occurs within 30 days of discharge for any cause.

Skilled Nursing Facility (SNF) refers to facilities that offer 24/7 custodial and skilled care (care that requires professional training) for residents who have short-term needs such as rehabilitation and for residents who suffer from persistent and serious health issues.

APPENDIX B.

INTERACT SBAR

SBAR Communication Form

and Progress Note for RNs/LPN/LVNs



Before Calling the Physician / NP / PA /other Healthcare Professional:

- ☐ **Evaluate the Resident:** Complete relevant aspects of the SBAR form below
- ☐ **Check Vital Signs:** BP, pulse, and/or apical heart rate, temperature, respiratory rate, O₂ saturation and finger stick glucose for diabetics
- ☐ **Review Record:** Recent progress notes, labs, medications, other orders
- ☐ **Review an INTERACT Care Path or Acute Change in Condition File Card, if indicated**
- ☐ **Have Relevant Information Available when Reporting**
(i.e. medical record, vital signs, advance directives such as DNR and other care limiting orders, allergies, medication list)

SITUATION

The change in condition, symptoms, or signs observed and evaluated is/are _____

This started on ____/____/____ Since this started it has gotten: ☐ Worse ☐ Better ☐ Stayed the same

Things that make the condition or symptom worse are _____

Things that make the condition or symptom better are _____

This condition, symptom, or sign has occurred before: ☐ Yes ☐ No

Treatment for last episode (if applicable) _____

Other relevant information _____

BACKGROUND

Resident Description

This resident is in the facility for: ☐ Long-Term Care ☐ Post Acute Care ☐ Other: _____

Primary diagnoses _____

Other pertinent history (e.g. medical diagnosis of CHF, DM, COPD) _____

Medication Alerts

☐ Changes in the last week (describe) _____

☐ Resident is on (Warfarin/Coumadin) Result of last INR: _____ Date ____/____/____

☐ Resident is on other anticoagulant (direct thrombin inhibitor or platelet inhibitor)

Resident is on: ☐ Hypoglycemic medication(s) / Insulin ☐ Digoxin

Allergies _____

Vital Signs

BP _____ Pulse _____ (or Apical HR _____) RR _____ Temp _____ Weight _____ lbs (date ____/____/____)

For CHF, edema, or weight loss: last weight before the current one was _____ on ____/____/____

Pulse Oximetry (if indicated) _____% on ☐ Room Air ☐ O₂ (_____) _____

Blood Sugar (Diabetics) _____

Resident /Patient Name _____ (continued)

SBAR Communication Form

and Progress Note for RNs/LPN/LVNs (cont'd)



Resident Evaluation

Note: Except for Mental and Functional Status evaluations, if the item is not relevant to the change in condition check the box for "not clinically applicable to the change in condition being reported".

1. Mental Status Evaluation (compared to baseline; check all changes that you observe)

- | | | |
|---|---|--|
| <input type="checkbox"/> Decreased level of consciousness (sleepy, lethargic) | <input type="checkbox"/> New or worsened delusions or hallucinations | <input type="checkbox"/> Other (describe) |
| <input type="checkbox"/> Increased confusion or disorientation | <input type="checkbox"/> Other symptoms or signs of delirium (e.g. inability to pay attention, disorganized thinking) | <input type="checkbox"/> No changes observed |
| <input type="checkbox"/> Memory loss (new or worsening) | <input type="checkbox"/> Unresponsiveness | |

Describe symptoms or signs _____

2. Functional Status Evaluation (compared to baseline; check all that you observe)

- | | | |
|--|--|--|
| <input type="checkbox"/> Decreased mobility | <input type="checkbox"/> Swallowing difficulty | <input type="checkbox"/> Other (describe) |
| <input type="checkbox"/> Needs more assistance with ADLs | <input type="checkbox"/> Weakness (general) | <input type="checkbox"/> No changes observed |
| <input type="checkbox"/> Falls (one or more) | | |

Describe symptoms or signs _____

3. Behavioral Evaluation

- | | | |
|--|--|--|
| <input type="checkbox"/> Danger to self or others | <input type="checkbox"/> Suicide potential | <input type="checkbox"/> Personality change |
| <input type="checkbox"/> Depression (crying, hopelessness, not eating) | <input type="checkbox"/> Verbal aggression | <input type="checkbox"/> Other behavioral changes (describe) |
| <input type="checkbox"/> Social withdrawal (isolation, apathy) | <input type="checkbox"/> Physical aggression | <input type="checkbox"/> No changes observed |

Describe symptoms or signs _____

☐ Not clinically applicable to the change in condition being reported

4. Respiratory Evaluation

- | | | |
|---|---|---|
| <input type="checkbox"/> Abnormal lung sounds (rales, rhonchi, wheezing) | <input type="checkbox"/> Inability to eat or sleep due to SOB | <input type="checkbox"/> Symptoms of common cold |
| <input type="checkbox"/> Asthma (with wheezing) | <input type="checkbox"/> Labored or rapid breathing | <input type="checkbox"/> Other respiratory changes (describe) |
| <input type="checkbox"/> Cough (<input type="checkbox"/> Non-productive <input type="checkbox"/> Productive) | <input type="checkbox"/> Shortness of breath | <input type="checkbox"/> No changes observed |

Describe symptoms or signs _____

☐ Not clinically applicable to the change in condition being reported

5. Cardiovascular Evaluation

- | | | |
|---|--|--|
| <input type="checkbox"/> Chest pain/tightness | <input type="checkbox"/> Irregular pulse (new) | <input type="checkbox"/> Other (describe) |
| <input type="checkbox"/> Edema | <input type="checkbox"/> Resting pulse >100 or <50 | <input type="checkbox"/> No changes observed |
| <input type="checkbox"/> Inability to stand without severe dizziness or lightheadedness | | |

Describe symptoms or signs _____

☐ Not clinically applicable to the change in condition being reported

6. Abdominal / GI Evaluation

- | | | |
|---|--|---|
| <input type="checkbox"/> Abdominal pain | <input type="checkbox"/> Distended abdomen | <input type="checkbox"/> Jaundice |
| <input type="checkbox"/> Abdominal tenderness | <input type="checkbox"/> Decreased appetite/fluid intake | <input type="checkbox"/> Nausea and/or vomiting |
| <input type="checkbox"/> Constipation
(date of last BM ____ / ____ / ____) | <input type="checkbox"/> Diarrhea | <input type="checkbox"/> Other (describe) |
| <input type="checkbox"/> Decreased/absent bowel sounds | <input type="checkbox"/> GI Bleeding (blood in stool or vomitus) | <input type="checkbox"/> No changes observed |
| | <input type="checkbox"/> Hyperactive bowel sounds | |

Describe symptoms or signs _____

☐ Not clinically applicable to the change in condition being reported

Resident/Patient Name _____

(continued)

SBAR Communication Form

and Progress Note for RNs/LPN/LVNs (cont'd)



7. GU/Urine Evaluation

- | | | |
|---|--|--|
| <input type="checkbox"/> Blood in urine | <input type="checkbox"/> New or worsening incontinence | <input type="checkbox"/> Other (describe) |
| <input type="checkbox"/> Decreased urine output | <input type="checkbox"/> Painful urination | <input type="checkbox"/> No changes observed |
| <input type="checkbox"/> Lower abdominal pain or tenderness | <input type="checkbox"/> Urinating more frequently or urgency with or without other urinary symptoms | |

Describe symptoms or signs _____
☐ Not clinically applicable to the change in condition being reported

8. Skin Evaluation

- | | | |
|--|---|--|
| <input type="checkbox"/> Abrasion | <input type="checkbox"/> Itching | <input type="checkbox"/> Skin tear |
| <input type="checkbox"/> Blister | <input type="checkbox"/> Laceration | <input type="checkbox"/> Splinter/sliver |
| <input type="checkbox"/> Burn | <input type="checkbox"/> Pressure ulcer | <input type="checkbox"/> Wound (describe) |
| <input type="checkbox"/> Contusion | <input type="checkbox"/> Puncture | <input type="checkbox"/> Other (describe) |
| <input type="checkbox"/> Discoloration | <input type="checkbox"/> Rash | <input type="checkbox"/> No changes observed |

Describe symptoms or signs _____
☐ Not clinically applicable to the change in condition being reported

9. Pain Evaluation

Does the resident have pain?

- ☐ No ☐ Yes (describe below)

Is the pain?

- ☐ New ☐ Worsening of chronic pain

Description/location of pain: _____

Intensity of Pain (rate on scale of 1-10, with 10 being the worst): _____

Does the resident show non-verbal signs of pain (for residents with dementia)?

- ☐ No ☐ Yes (describe) _____
(restless, pacing, grimacing, new change in behavior)

Other information about the pain _____
☐ Not clinically applicable to the change in condition being reported

10. Neurological Evaluation

- | | | |
|---|--|---|
| <input type="checkbox"/> Abnormal Speech | <input type="checkbox"/> Seizure | <input type="checkbox"/> Other neurological symptoms (describe) |
| <input type="checkbox"/> Decreased level of consciousness | <input type="checkbox"/> Weakness or hemiparesis | <input type="checkbox"/> No changes observed |
| <input type="checkbox"/> Dizziness or unsteadiness | | |

Describe symptoms or signs _____
☐ Not clinically applicable to the change in condition being reported

Advance Care Planning Information (the resident has orders for the following advanced care planning)

- ☐ Full Code ☐ DNR ☐ DNI (Do Not Intubate) ☐ DNH (Do Not Hospitalize) ☐ No Enteral Feeding ☐ Other Order or Living Will (specify)

Other resident or family preferences for care _____

Resident/Patient Name _____ (continued)

SBAR Communication Form

and Progress Note for RNs/LPN/LVNs (cont'd)



APPEARANCE

Summarize your observations and evaluation: _____

REVIEW AND NOTIFY

Primary Care Clinician Notified: _____ Date ____/____/____ Time (am/pm) _____

Recommendations of Primary Clinicians (if any) _____

b. Check *all* that apply

Testing

- ☐ Blood tests
- ☐ EKG
- ☐ Urinalysis and/or culture

- ☐ Venous doppler
- ☐ X-ray
- ☐ Other (describe) _____

Interventions

- ☐ New or change in medication(s)
- ☐ IV or subcutaneous fluids
- ☐ Increase oral fluids
- ☐ Oxygen (if available)
- ☐ Other (describe) _____

- ☐ Transfer to the hospital (non-emergency) (send a copy of this form)
- ☐ Call for 911
- ☐ Emergency medical transport

Nursing Notes (for additional information on the Change in Condition)

Name of Family/Health Care Agent Notified: _____ Date ____/____/____ Time (am/pm) _____

Staff Name (RN/LPN/LVN) and Signature _____

Resident/Patient Name _____

APPENDIX C.

CONDITION-SPECIFIC SBARs

Cardiac Status Change SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____ A.M. | ____ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Congestive Heart Failure ☐ Heart Attack/MI ☐ Heart Surgery ☐ Pacer/ICD ☐ Diabetes ☐ DVT
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ High Blood Pressure ☐ GERD ☐ Stroke/CVA ☐ AAA
☐ Swallowing Difficulties ☐ Atrial Fibrillation ☐ Dementia ☐ Anemia ☐ Smoking ☐ Other _____

Symptoms

☐ Chest Pain [Scale (1-10) _____] ☐ New ☐ Onset [☐ Sudden ☐ Intermittent] ☐ SOB [increases with inspiration? _____]
☐ Heartburn ☐ Nausea ☐ Shoulder/Jaw ☐ Nitro SL used [Doses (x3?) _____, time of last dose _____]

Physical Exam

Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Moderate ☐ Severe ☐ Restless/fidgety]
 Decreased Activity Tolerance: _____ Cognitive Changes: _____
 Skin: ☐ WNL ☐ Cold ☐ Clammy ☐ Cyanotic ☐ Warm ☐ Dry ☐ Diaphoretic ☐ Mottling
 Abdomen: ☐ Bowel sounds present ☐ Bowel sounds absent ☐ Distended ☐ Abdominal pain
 Lungs: ☐ Breath sounds clear bilaterally ☐ Decreased breath sounds ☐ Wheezing ☐ Rales ☐ Rhonchi ☐ Accessory muscle use
 Cough: ☐ None ☐ Non-Productive ☐ Productive
 Productive Cough: ☐ Yellow ☐ Green ☐ Clear ☐ Brown ☐ Black ☐ Blood ☐ Pink-frothy ☐ White-frothy ☐ Food
 Extremities: ☐ No changes observed ☐ Edema [☐ +1 ☐ +2 ☐ +3] ☐ New ☐ Worsening ☐ Unilateral ☐ Bilateral
 PO Intake: ☐ Per usual ☐ NPO ☐ Poor PO Intake ☐ Fluid intake (cc/last 24hr) _____ ☐ Urine output (24hr) _____

Medications

New Medications/Recent Med Changes: _____ Allergies: _____
 Cardiac Meds: _____ Diuretics: ☐ Lasix ☐ Bumex ☐ Coumadin/Other Meds _____

Most Recent Labs and Diagnostic

☐ BMP/CBC _____ ☐ Chest X-ray _____ ☐ EKG _____ ☐ Ejection Fraction _____ ☐ Cardiac Enzymes _____
 DATE DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ Do not transfer

Comments

Respiratory Status Change SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____:____ ☐ A.M. ☐ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Congestive Heart Failure ☐ Heart Attack/MI ☐ Heart Surgery ☐ Pacer/ICD ☐ Diabetes ☐ DVT ☐ GERD
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ High Blood Pressure ☐ Stroke/CVA ☐ Seizure ☐ Anemia ☐ Dialysis
☐ Swallowing Difficulties ☐ Atrial Fibrillation ☐ Dementia ☐ Smoking ☐ Pneumonia/Asp Pneumonia ☐ Other _____

Symptoms

Short of Breath: ☐ None ☐ New ☐ Worse than normal ☐ Sore throat ☐ Nasal drainage ☐ Sneezing ☐ Nasal congestion
 Inhaler or Nebulizer Use: ☐ No ☐ Yes [If yes, has frequency of use increased? ☐ No ☐ Yes Is it effective when used? ☐ No ☐ Yes]
 Cough: ☐ None ☐ Non-Productive ☐ Productive ☐ Coughing w/PO intake ☐ Recent vomiting
 Productive Cough: ☐ Yellow ☐ Green ☐ Clear ☐ Brown ☐ Black ☐ Blood ☐ Pink-frothy ☐ White-frothy ☐ Food
 Productive Cough Consistency: ☐ N/A ☐ Thick ☐ Thin Amount: ☐ Small ☐ Moderate ☐ Large
 Chest Pain: ☐ N/A ☐ New ☐ Worsening ☐ with Inspiration

Physical Exam

Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Moderate ☐ Severe ☐ Restless/fidgety]
 Decreased Activity Tolerance: _____ Cognitive Changes: _____
 Skin: ☐ WNL ☐ Cold ☐ Clammy ☐ Cyanotic ☐ Warm ☐ Mottling ☐ Pallor ☐ Diaphoretic
 Lungs: ☐ Clear to auscultation ☐ Decreased breath sounds ☐ Wheezing ☐ Rales ☐ Rhonchi ☐ Accessory muscle use
 Extremities: ☐ No changes observed ☐ Edema [☐ +1 ☐ +2 ☐ +3] ☐ New ☐ Worsening ☐ Unilateral ☐ Bilateral
 PO Intake: ☐ Per usual ☐ Increased ☐ Decreased ☐ Fluid (cc/last 24hr) _____ ☐ IV fluids _____ ☐ Urine output (24hr) _____

Medications

New Medications/Recent Med Changes: _____ Allergies: _____

Most Recent Labs and Diagnostic

☐ BMP _____ ☐ CMP _____ ☐ CBC w/diff _____ ☐ CXR _____
 DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

Mental Status Change SBAR (includes S/S CVA)

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____ ☐ A.M. ☐ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [if O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Alzheimer's/Dementia ☐ Heart Attack/MI ☐ Congestive Heart Failure ☐ Heart Surgery ☐ Diabetes ☐ Seizure ☐ GERD
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ High Blood Pressure ☐ Stroke/CVA ☐ Smoking ☐ Anemia ☐ TIA
☐ Anticoagulant Therapy ☐ Atrial Fibrillation ☐ Recent Head Injury ☐ Recent Falls ☐ DVT
☐ Swallowing Difficulties ☐ Other _____

Symptoms

Onset: ☐ Sudden ☐ Gradual Duration: _____ ☐ Worst headache ever ☐ Weakness/numbness/tingling of extremities
 Cognitive changes: ☐ Agitated ☐ Combative ☐ Restless ☐ Diff to arouse ☐ Irritable/Grouchy ☐ Reclusive ☐ Slow to Respond
☐ Repetitive movement ☐ Resident/family/friends noting change in mental status Abd Pain: ☐ N/A ☐ Flank pain ☐ Dysuria

Physical Exam

Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Moderate ☐ Severe]
 Decreased Activity Tolerance: _____ Cognitive Changes: _____
 Neuro: ☐ WNL ☐ Change/inability to speak ☐ Facial Droop Cardiac Exam: ☐ WNL ☐ RRR ☐ Bradycardic <50 ☐ Tachycardic >100
 Lungs: ☐ Clear to auscultation ☐ Wheezing ☐ Rales ☐ Rhonchi
 Abdomen: ☐ BS present ☐ Soft ☐ Distended ☐ Tender ☐ Incontinent (new) of Urine ☐ Incontinent (new) of Stool
 Skin: ☐ WNL ☐ Warm and Dry ☐ Wounds/Ulcers [Describe: _____]
 Extremities: ☐ No changes observed ☐ Edema [☐ +1 ☐ +2 ☐ +3] ☐ New ☐ Worsening ☐ Unilateral ☐ Bilateral
 PO Intake: ☐ Per usual ☐ Decreased ☐ Fluid (cc/last 24hr) _____ ☐ Urine output (24hr) _____

Medications

New Medications/Recent Med Changes: _____ Allergies: _____

Most Recent Labs and Diagnostic

☐ BMP _____ ☐ CMP _____ ☐ CBC w/diff _____ ☐ CXR _____ ☐ U/A _____ ☐ U/A C&S _____ ☐ UA to Reflux _____
 DATE DATE DATE DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

Fluid/PO Intake Change SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____ ☐ A.M. ☐ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Congestive Heart Failure ☐ Heart Attack/MI ☐ Alzheimer's/Dementia ☐ Gastric Ulcer ☐ Diabetes ☐ GERD
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ VRE/MRSA ☐ Stroke/CVA ☐ Seizures ☐ MDRO
☐ High Blood Pressure ☐ Liver Disease ☐ Gastric Bypass ☐ Pancreatitis ☐ Recent fall(s) ☐ Cancer
☐ Swallowing Difficulties ☐ Osteomyelitis ☐ Head Injury ☐ Anorexia ☐ Constipation ☐ Dialysis
☐ Failure to Thrive ☐ Other _____

Symptoms

Onset: ☐ Sudden ☐ Gradual Duration: _____ Last Normal Bowel Movement: _____
 Complaints: ☐ Mouth Pain ☐ Toothache ☐ Sore Throat ☐ Chest/Back Pain ☐ SOB ☐ Abd Pain/Tenderness ☐ Vomiting ☐ Diarrhea
 Appetite: ☐ Normal ☐ Poor food intake ☐ Poor fluid intake Fluid Intake (last 24hrs) _____ Urine Output (last 24hrs) _____

Physical Exam

Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Moderate ☐ Severe]
 Cognitive Changes: ☐ Agitated ☐ Combative ☐ Restless ☐ Increased Sleeping Decreased Activity Tolerance: _____
 Neuro: ☐ WNL ☐ Diff swallowing ☐ Diff with holding cup/utensil ☐ Speech changes
 Skin: ☐ Warm ☐ Dry ☐ Pale ☐ Jaundice ☐ Diaphoretic ☐ Mottling
 Abdomen: ☐ Bowel Sounds Present ☐ Bowel Sounds Absent ☐ Tender ☐ Distended ☐ Hypoactive
 Lungs: ☐ Clear to auscultation ☐ Decreased breath sounds ☐ Wheezing ☐ Rales ☐ Rhonchi
 Extremities: ☐ No changes observed ☐ Edema [☐ +1 ☐ +2 ☐ +3] ☐ New ☐ Worsening ☐ Unilateral ☐ Bilateral

Medications

New Medications/Recent Med Changes: _____ Allergies: _____

Most Recent Labs and Diagnostic

☐ BMP _____ ☐ CMP _____ ☐ CBC w/diff _____ ☐ CXR _____ ☐ U/A _____ ☐ U/A C&S _____ ☐ UA to Reflux _____
 DATE DATE DATE DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

Fall SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date _____ Time _____ ☐ A.M. ☐ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ Slight gain in the last month ☐ Slight loss in the last month ☐ No change

Medical History

☐ Congestive Heart Failure ☐ Heart Attack/MI ☐ Heart Surgery ☐ Head Injury ☐ Diabetes ☐ TIA
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ High Blood Pressure ☐ Seizures ☐ Stroke/CVA ☐ GERD
☐ Anticoagulant Therapy ☐ Atrial Fibrillation ☐ Recent Falls ☐ Anemia ☐ Smoking
☐ Swallowing Difficulties ☐ Alzheimer's/Dementia ☐ Other _____

Symptoms

Resident/family/staff noting change in ambulation? ☐ No ☐ Yes If yes: ☐ Sudden ☐ Gradual [Over past few: ☐ Days ☐ Weeks]
 Fall Witnessed? ☐ No ☐ Yes Fall resulted in: ☐ Bleeding ☐ Pain Location: _____ Scale (1-10): _____
 Prior to fall, resident complained of: ☐ Black out ☐ Dizziness ☐ Neither
 Orthostatic BP: Lying Down _____ Sitting _____ Standing _____

Physical Exam

☐ No apparent injuries sustained ☐ Injury ☐ Loss of consciousness
 Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Mod ☐ Severe]
 Cognitive Changes: ☐ None ☐ Agitated ☐ Combative ☐ Restlessness Neuro: ☐ WNL ☐ More sleepy ☐ Difficult to arouse
 Skin: ☐ Warm and dry ☐ Injury _____
 Cardiac: ☐ WNL ☐ RRR Lungs: ☐ Clear to auscultation ☐ Not clear Abdomen: ☐ Soft ☐ BS present
 Extremities: ☐ No apparent injuries sustained ☐ Injury Describe injury: _____

Medications

New Medications/Recent Med Changes: _____ Allergies: _____
 Any PRN meds given 8hrs prior to fall? ☐ No ☐ Yes If yes, list: _____

Most Recent Labs and Diagnostic

☐ BMP _____ ☐ CMP _____ ☐ CBC w/diff _____ ☐ CXR _____
 DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

Fever of Unknown Origin SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____:____:____ ☐ A.M. ☐ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ MRSA/VRE/MDRO ☐ Diabetes ☐ Head Injury ☐ MS ☐ ALS
☐ Swallowing Difficulties ☐ Hemodialysis ☐ Huntington's ☐ Seizures ☐ GERD ☐ Cancer
☐ Alzheimer's/Dementia ☐ Osteomyelitis ☐ Chronic Wound ☐ Cellulitis ☐ Other _____

Symptoms

Resident/family/friends noting change in mental status? ☐ No ☐ Yes Describe: _____
 Complaints of: ☐ Headache ☐ Facial Fullness ☐ Cough ☐ Congestion ☐ Sore Throat ☐ SOB ☐ Chest Pain ☐ Back Pain
☐ Flank Pain ☐ Generalized Malaise **Abdominal:** ☐ N/A ☐ Pain ☐ Cramping ☐ Nausea ☐ Diarrhea ☐ Dysuria
 Onset: ☐ Sudden ☐ Gradual Duration: _____

Physical Exam

Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Moderate ☐ Severe ☐ Restless/fidgety]
 Neuro: ☐ WNL ☐ More sleepy ☐ Slow to respond to verbal stimuli ☐ Difficult to arouse
 Skin: ☐ Warm and Dry ☐ Suspected infection of a wound Describe: _____
 Lungs: ☐ Clear to auscultation ☐ Rales ☐ Rhonchi ☐ Wheeze
 Abdomen: ☐ BS Present ☐ BS Absent (after listening for 5 minutes) ☐ Soft ☐ Distended ☐ Tender ☐ Hyperactive ☐ Hypoactive
☐ Urinary output per usual ☐ Foley draining per usual ☐ Suspected retention Bladder Scan Results: _____ cc
 Extremities: ☐ No changes observed ☐ Edema [☐ +1 ☐ +2 ☐ +3] ☐ New ☐ Worsening ☐ Unilateral ☐ Bilateral
 PO Intake: ☐ Per usual ☐ Decreased ☐ Fluid intake (cc/last 24hr) _____ ☐ Urine output WNL

Medications

New Medications/Recent Med Changes: _____ Allergies: _____

Most Recent Labs and Diagnostic

☐ BMP _____ ☐ CMP _____ ☐ CBC w/diff _____ ☐ CXR _____ ☐ U/A _____ ☐ U/A C&S _____ ☐ UA to Reflux _____
 DATE DATE DATE DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

GI Symptoms Change SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____:____ A.M. | P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Congestive Heart Failure ☐ Heart Attack/MI ☐ Heart Surgery ☐ Atrial Fibrillation ☐ Diabetes ☐ DVT ☐ GERD
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ Diverticulitis ☐ High Blood Pressure ☐ Stroke/CVA ☐ C-Diff ☐ Cancer
☐ Swallowing Difficulties ☐ GI Bleed ☐ Colitis ☐ Crohn's ☐ Dementia ☐ Smoking ☐ Other _____

Symptoms

☐ Nausea ☐ Abdominal pain Onset: ☐ Sudden ☐ Gradual Duration (days): _____
 Vomiting: ☐ No ☐ Yes If yes, ☐ Blood ☐ Yellow color ☐ Green color ☐ Undigested food
 Bowels: Last normal BM: _____ ☐ Blood ☐ Mucus ☐ Black/Tarry Fecal Occult Blood: ☐ Pos ☐ Neg ☐ Not Done
☐ Diarrhea How many times in a day? _____ How many days? _____ Recent antibiotics: _____

Physical Exam

Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Moderate ☐ Severe]
 Skin: ☐ WNL ☐ Warm and Dry ☐ Jaundice ☐ Pallor ☐ Cyanotic ☐ Mottling
 Cardiac Exam: ☐ WNL ☐ RRR ☐ Rapid HR >100 ☐ Slow HR <60 Lungs: ☐ Clear to auscultation ☐ Rales ☐ Rhonchi
 Abdomen: ☐ BS present ☐ BS absent ☐ Distended ☐ Tender ☐ Hyperactive ☐ Hypoactive
☐ Incontinent (new) of Urine ☐ Incontinent (new) of Stool
 PO Intake: ☐ Per usual ☐ Feeding tube ☐ Poor PO intake Type of diet: _____ ☐ Fluid intake _____ ☐ Urine output _____

Medications

New Medications/Recent Med Changes: _____ Allergies: _____
 Significant Meds: ☐ ASA ☐ PPI ☐ Antibiotics ☐ Coumadin

Most Recent Labs and Diagnostic

☐ BMP _____ ☐ CMP _____ ☐ CBC w/diff _____ ☐ CXR _____
 DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

Skin Integrity Change SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____:____:____ ☐ A.M. | ☐ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Congestive Heart Failure ☐ Heart Attack/MI ☐ Heart Surgery ☐ Cellulitis ☐ Diabetes ☐ DVT
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ High Blood Pressure ☐ GERD ☐ Stroke/CVA ☐ PVD
☐ Chronic Liver Disease ☐ Osteomyelitis ☐ Swallowing Difficulties ☐ Dementia ☐ Anemia ☐ MRSA
☐ Other _____

Symptoms

Wounds: ☐ N/A ☐ New Location: _____ Stage: _____ ☐ From a fall ☐ Skin Tear
 Itching: Date first noticed: _____ ☐ Rash ☐ Hives ☐ Pustules ☐ Pain at site
 Onset: ☐ Sudden ☐ Gradual Duration: _____ Odor: ☐ Yes ☐ No
 Drainage: ☐ N/A ☐ Clear fluid ☐ Bloody Clear ☐ Bluish Green ☐ Thick Yellow
 Amount of drainage: ☐ N/A ☐ Small ☐ Medium ☐ Large

Physical Exam

Resident Appearance: _____ Cognitive Changes: _____
 Skin: ☐ WNL ☐ Streaking ☐ Cold/Clammy ☐ Pallor/Gray ☐ Cyanotic/Purplish ☐ Blanches ☐ Mottling
☐ Area warm to touch ☐ Pain at site
 Lungs: ☐ Clear to auscultation ☐ Rales
 Extremities: ☐ No changes observed ☐ Edema [☐ +1 ☐ +2 ☐ +3] ☐ New ☐ Worsening ☐ Unilateral ☐ Bilateral
 PO Intake: ☐ Per usual ☐ Decreased ☐ Increased ☐ Fluid intake (cc/last 24hr) _____ ☐ Urine output (qs) _____

Medications

New Medications/Recent Med Changes: _____ Allergies: _____

Most Recent Labs and Diagnostic

☐ Metabolic panel _____ ☐ CBC/diff _____ ☐ CXR _____
 DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

Miscellaneous Changes SBAR

General Information

Doctor _____ Resident Name _____ Gender _____ Age _____
 Date ____/____/____ Time ____:____ ☐ A.M. | ☐ P.M. Resident MRN _____ Reason for Call _____

Vital Signs

Temp: _____ Apical Pulse: _____ ☐ Irregular ☐ Normal Respirations _____ ☐ Labored ☐ Shallow ☐ Dry ☐ Moist
 BP: _____ Pulse Ox: _____ ☐ Room Air ☐ O2 [If O2, # Liters _____ via ☐ NC ☐ FM ☐ Non-Rebreather]
 Finger stick glucose (diabetics) _____ Weight: ☐ 5lb gain in the last month ☐ 5lb loss in the last month ☐ No change

Medical History

☐ Congestive Heart Failure ☐ Heart Attack/MI ☐ Heart Surgery ☐ Head Injury ☐ Diabetes ☐ DVT
☐ Chronic Kidney Disease ☐ COPD/Asthma ☐ High Blood Pressure ☐ Seizures ☐ Stroke/CVA ☐ GERD
☐ Anticoagulant Therapy ☐ Hemodialysis ☐ Recent Fall(s) ☐ Cancer ☐ Anemia
☐ Swallowing Difficulties ☐ Atrial Fibrillation ☐ Alzheimer's/Dementia ☐ Other _____

Symptoms

Resident/family concerns: _____
 Resident complaints: _____

Physical Exam

Clinical Appearance: ☐ No acute distress ☐ Distress [☐ Mild ☐ Moderate ☐ Severe]
 Activity: ☐ Per usual ☐ Other _____
 Cognition: ☐ Per usual ☐ Other _____
 Appetite: ☐ Per usual ☐ Other _____
 Cardiac Exam: ☐ RRR/Per Baseline ☐ Other _____
 Lungs: ☐ Clear Bilaterally/Per Baseline ☐ Other _____
 Abdomen: ☐ BS Per Baseline ☐ Other _____
 Skin: ☐ WNL ☐ Other _____
 Extremities: ☐ Per Baseline ☐ Other _____
 PO Intake: ☐ Per Usual ☐ Other _____

Allergies

Most Recent Labs and Diagnostic

☐ BMP _____ ☐ CMP _____ ☐ CBC w/diff _____ ☐ CXR _____ ☐ U/A _____ ☐ U/A C&S _____ ☐ UA to Reflux _____
DATE DATE DATE DATE DATE DATE DATE

POLST

☐ Full Code ☐ DNR ☐ Limited ☐ CMO ☐ Do not transfer

Comments

APPENDIX D.

LONG TERM NURSE-PHYSICIAN COMMUNICATION SCALE

Code _____

Please answer the following questions. The survey is designed so as not to be able to link your responses to you. All information will be maintained in a locked cabinet and the researcher is the only person who will have access to it. No individual responses will be shared with your employer.

Thank you for your participation!

1. Are you a:

RN_____

LPN_____

2. What is the highest degree that you have completed?

a) LPN

b) Diploma RN

c) Associates Degree (Please check if degree is nursing or other)

Nursing_____ Other_____

d) Bachelor's Degree (Please check if degree is nursing or other)

Nursing_____ Other_____

e) Master's Degree (Please check if degree is nursing or other)

Nursing_____ Other_____

f) Doctorate Degree (Please check if PhD or DNP)

PhD_____ DNP_____

3. How long have you been a nurse?

a) Less than 6 months

b) 6 months to 1 year

c) 1 year to 5 years

d) 5-10 years

e) 10-20 years

f) Greater than 20 years

(Continue Next Page)

4. How long have you worked in Long-term Care?
- a) Less than 3 months
 - b) 3 months to 1 year
 - c) 1 year to 5 years
 - d) 5-10 years
 - e) 10-20 years
 - f) Greater than 20 years
5. In the past 10 years, how many long-term care facilities have you worked?
- _____
6. How long have you worked in your current position?
- a) Less than 3 months
 - b) 3 months to 1 year
 - c) 1 year to 5 years
 - d) 5-10 years
 - e) 10-20 years
 - f) Greater than 20 years
7. What is your ethnic background?
- a) White
 - b) Hispanic
 - c) Black
 - d) Others

Nurse Physician Communication Survey

Please respond to the following statements in regard to your thoughts about the **current** situation

	Very Difficult	Somewhat Difficult	Neutral	Somewhat Easy	Very Easy
How difficult or easy do you find it to talk openly with the physicians working with this nursing home?	1	2	3	4	5
How difficult or easy do you find it to ask physicians for advice?	1	2	3	4	5
	Almost Never	Sometimes	Neutral	Almost Always	Always
How often is the information or advice you get from physicians relevant?	1	2	3	4	5
How often would you say that physicians listen to what you have to say?	1	2	3	4	5
How often do you find it enjoyable to talk to physicians?	1	2	3	4	5
How often do you have difficulties understanding what physicians mean?	1	2	3	4	5
How often would you receive correct information or advice from a physician?	1	2	3	4	5
How often do physicians have difficulties understanding what you mean?	1	2	3	4	5

	None	Little	Neutral	Fair	A lot
How open is the communication between nurses and physicians in this nursing home?	1	2	3	4	5
How valuable do you find your contacts with physicians?	1	2	3	4	5
How much understanding is there between nurses and physicians In this nursing home?	1	2	3	4	5
	Never	Sometimes	Neutral	Frequently	Almost Always
How often do you feel angry after an interaction with a physician?	1	2	3	4	5
How often do you feel satisfied after an interaction with a physician?	1	2	3	4	5
How often do you feel frustrated after an interaction with a physician?	1	2	3	4	5
How often do you feel misunderstood after and interaction with a physician?	1	2	3	4	5
How often do you feel pleased after an interaction with a physician?	1	2	3	4	5
How often do you feel dissatisfied after an interaction with a physician?	1	2	3	4	5
How often do you feel respected after an interaction with a physician?	1	2	3	4	5

APPENDIX E.

DATA COLLECTION TOOLS

Quality Improvement Tool

For Review of Acute Care Transfers



The INTERACT QI Tool is designed to help your team analyze hospital transfers (including ER visits, observation stay and admissions) and identify opportunities to reduce transfers that might be preventable. Complete this tool for each or a representative sample of hospital transfers in order to conduct a root cause analysis and identify common reasons for transfers. Examining trends in these data with the INTERACT QI Summary Tool can help you focus educational and care process improvement activities.

Patient/Resident _____ Age _____

Date of most recent admission to the facility _____ / _____ / _____

Primary goal of admission: ☐ Post-acute care ☐ Long-stay ☐ Others: _____

SECTION 1: Risk Factors for Hospitalization and Readmission

a. Conditions that put the resident at risk for hospital admission or readmission:

- | | |
|---|--|
| <input type="checkbox"/> Cancer, on active chemo or radiation therapy | <input type="checkbox"/> Fracture (Hip) |
| <input type="checkbox"/> CHF | <input type="checkbox"/> Multiple active diagnoses and/or co-morbidities
(e.g. CHF, COPD and Diabetes in the same patient/resident) |
| <input type="checkbox"/> COPD | <input type="checkbox"/> Polypharmacy (e.g. 9 or more medications) |
| <input type="checkbox"/> Dementia | <input type="checkbox"/> Surgical complications |
| <input type="checkbox"/> Diabetes | |
| <input type="checkbox"/> End-stage renal disease | |

b. Was Patient/Resident hospitalized in the **30 days before their most recent admission to the facility?** ☐ No ☐ Yes (list dates and reasons)
(Other than the one being reviewed in this tool)

c. Other hospitalizations or emergency department visits in the **past 12 months?** ☐ No ☐ Yes (list dates and reasons)
(Other than the one being reviewed in this tool)

SECTION 2: Describe the Acute Change in Condition and Other Non-Clinical Factors that Contributed to the Transfer

a. Date the change in condition first noticed _____ / _____ / _____

b. Briefly describe the change in condition and other factor(s) that led to the transfer and then check each item below that applies

c. Vital signs at time of transfer

Temp _____ Pulse _____ Pulse O₂ (if indicated) _____ % on ☐ Room Air ☐ O₂ (_____) _____
Respiratory rate _____ BP _____ / _____ Glucose (diabetics) _____

(continued on reverse side)

Quality Improvement Tool

For Review of Acute Care Transfers (cont'd)



d. Check all that apply

New or Worsening Symptoms or Signs

- ☐ Abdominal Pain
- ☐ Abnormal vital signs (low/high BP, high respiratory rate)
- ☐ Altered mental status
- ☐ Behavioral symptoms (e.g. agitation, psychosis)
- ☐ Bleeding (other than GI)
- ☐ Cardiac arrest
- ☐ Chest pain
- ☐ Constipation
- ☐ Diarrhea
- ☐ Edema (new or worsening)
- ☐ Fall
- ☐ Fever
- ☐ Food and/or fluid intake (decreased or unable to eat and/or drink adequate amounts)
- ☐ Function decline (worsening function and/or mobility)
- ☐ Gastronomy tube blockage or displacement
- ☐ GI bleeding
- ☐ Hypertension (uncontrolled)
- ☐ Loss of consciousness (syncope)
- ☐ Nausea / vomiting
- ☐ Pain (uncontrolled)
- ☐ Respiratory arrest
- ☐ Respiratory infection (bronchitis, pneumonia)
- ☐ Shortness of breath
- ☐ Seizure
- ☐ Skin wound or ulcer
- ☐ Stroke / TIA / CVA
- ☐ Trauma (fall-related or other)
- ☐ Unresponsive
- ☐ Urinary incontinence
- ☐ Weight loss
- ☐ Other (describe) _____

Abnormal Labs or Tests Results

- ☐ Blood sugar (high)
- ☐ Blood Sugar (low)
- ☐ EKG
- ☐ Hemoglobin or hematocrit (low)
- ☐ INR (high)
- ☐ Kidney function (BUN, Creatinine)
- ☐ Pulse oximetry (low oxygen saturation)
- ☐ Urinalysis or urine culture
- ☐ White blood cell count (high)
- ☐ X-ray
- ☐ Other (describe) _____

Diagnosis or Presumed Diagnosis

- ☐ Acute renal failure
- ☐ Anemia (new or worsening)
- ☐ Asthma
- ☐ CHF (congestive heart failure)
- ☐ Cellulitis
- ☐ COPD (chronic obstructive lung disease)
- ☐ DVT (deep vein thrombosis)
- ☐ Fracture (site: _____)
- ☐ Pneumonia
- ☐ UTI (urinary tract infection)
- ☐ Other (describe) _____

Other Factors

- ☐ Advance directive not in place
- ☐ Family and/or resident preference or concerns
- ☐ Clinician insisted on transfer despite staff willing to manage in facility
- ☐ Other (describe) _____

SECTION 3: Describe Action(s) Taken to Evaluate and Manage the Change in Condition Prior to Transfer

a. Briefly describe how the changes in Section 2 were evaluated and managed and check each item that applies

b. Check all that apply

Tools Used

- ☐ Stop and Watch
- ☐ SBAR
- ☐ Care Path(s)
- ☐ Change in Condition File Cards
- ☐ Transfer Checklist
- ☐ Acute Care Transfer Form (or an equivalent paper or electronic version)
- ☐ Advance Care Planning Tools
- ☐ Other Structured Tool or Form (describe) _____

Medical Evaluation

- ☐ Telephone only
- ☐ NP or PA visit
- ☐ Physician visit
- ☐ Other (e.g. in a specialist office or while at dialysis)

Testing

- ☐ Blood tests
- ☐ EKG
- ☐ Urinalysis and/or culture
- ☐ Venous doppler
- ☐ X-ray
- ☐ Other (describe) _____

Interventions

- ☐ New or change in medication(s)
- ☐ IV or subcutaneous fluids
- ☐ Increase oral fluids
- ☐ Oxygen (if available)
- ☐ Other (describe) _____

c. Were **advance care planning** or **advance directives** considered in evaluating/managing the change? (e.g. orders for Do Not Resuscitate (DNR), Do Not Intubate (DNI), palliative or hospice care, other such as POLST, MOLST or POST): ☐ No ☐ Yes (check all that apply)

if yes, were the relevant advance directives:

- ☐ Modified as a result of this change in clinical condition/transfer?
- ☐ Already in place and documented?
- ☐ New as a result of this change in clinical condition/transfer?

Describe _____

(continued)

Quality Improvement Tool

For Review of Acute Care Transfers (cont'd)



SECTION 4: Describe the Hospital Transfer

- a. Date of transfer _____ / _____ / _____ Day _____ Time (am/pm) _____
- b. Clinician authorizing transfer: ☐ Primary physician ☐ Covering physician ☐ NP or PA ☐ Other (specify) _____
- c. Outcome of transfer: ☐ ED visit only ☐ Held for observation ☐ Admitted to hospital as inpatient
- Hospital diagnosis(es) (if available) _____
- d. Resident died in ambulance or hospital: ☐ No ☐ Yes ☐ Unknown
- e. Factors contributing to transfer (check all that apply and describe)
- ☐ Advance directive not in place
 - ☐ Resident preferred or insisted on transfer
 - ☐ Family members preferred or insisted on transfer
 - ☐ Discharged from the hospital too soon
 - ☐ Clinician insisted on transfer despite staff willing to manage in the facility
 - ☐ Resources to provide care in the facility were not available
 - ☐ Other (describe) _____

SECTION 5: Identify Opportunities for Improvement

- a. In retrospect, does your team think this transfer might have been prevented? ☐ No ☐ Yes (describe) _____

If yes, check one or more that apply:

- ☐ The new sign, symptom, or other change might have been detected earlier
- ☐ Changes in the resident's condition might have been communicated better among facility staff, with physician / NP/PA, or other health care providers
- ☐ The condition might have been managed safely in the facility with available resources
- ☐ Resources were not available to manage the change in condition safely or effectively despite staff willing to manage in the facility (check all that apply)
 - ☐ On-site primary care clinician
 - ☐ Pharmacy services
 - ☐ Staffing
 - ☐ Other (describe) _____
 - ☐ Lab or other diagnostic tests
- ☐ Resident and family preferences for hospitalization might have been discussed earlier
- ☐ Advance directives and/or palliative or hospice care might have been put in place earlier
- ☐ Discharged from the hospital too soon
- ☐ Other (describe) _____

- b. In retrospect, does your team think this resident might have been transferred sooner? ☐ No ☐ Yes (if yes, describe) _____

- c. After review of how this change in condition was evaluated and managed, has your team identified any opportunities for improvement?
- ☐ No ☐ Yes (describe specific changes your team can make in your care processes and related education as a result of this review) _____

Name of person completing form _____ Date of completion _____ / _____ / _____

24 Hour Nursing Report

File Edit Options Setup Utilities Notes Home Help

24 Hour Report

Read?	Date	Event	Assignment	Fac/Unit#	Resident Name	Workflow	GoTo
<input type="checkbox"/>	06/12/2014	Resident Interdisciplinary Note	SN				ID Note
<input type="checkbox"/>	06/12/2014	Resident Interdisciplinary Note	SN				ID Note
<input type="checkbox"/>	06/12/2014	Resident Interdisciplinary Note	SN				ID Note
<input checked="" type="checkbox"/>	06/11/2014	Clean wheelchair tonight	SN				
<input checked="" type="checkbox"/>	06/11/2014	Provide education to resident on COPD	SN				
<input checked="" type="checkbox"/>	06/11/2014	Resident Admitted	SN				Admission
<input checked="" type="checkbox"/>	06/11/2014	Test	SN				
<input type="checkbox"/>	06/11/2014	Take vitals	SN				
<input type="checkbox"/>	06/11/2014	Resident Interdisciplinary Note	SN				ID Note
<input checked="" type="checkbox"/>	06/01/2014	Resident Admitted	SN				Admission
<input checked="" type="checkbox"/>	06/01/2014	Death wish	SN				POC
<input checked="" type="checkbox"/>	06/01/2014	Don't do anything I wouldn't do!	SN				
<input checked="" type="checkbox"/>	07/17/2014	Resident Infection	SN				Infection
<input checked="" type="checkbox"/>	07/11/2014	Created Order--Treatment	SN				Orders
<input checked="" type="checkbox"/>	07/11/2014	Created Order--Medication	SN				Orders
<input checked="" type="checkbox"/>	07/11/2014	Nurse Signature--Treatment	SN				Orders
<input checked="" type="checkbox"/>	07/11/2014	Nurse Signature--Treatment	SN				Orders
<input checked="" type="checkbox"/>	07/11/2014	Created Order--Medication	SN				Orders
<input checked="" type="checkbox"/>	07/11/2014	Nurse Signature--Medication	SN				Orders
<input checked="" type="checkbox"/>	07/11/2014	Nurse Signature--Medication	SN				Orders

User Notes:

Spell Check Super Edit Create ID Note

Order: Assignment Range: All Dates

Create New User Defined Alert

Assignment Filter SN

Created by: jhALEY 09/23/05

Ok ? Help Print

Show Only Unread Mark items read when viewed

Alerts and Messages **NEW!** Create Alert Refresh

Ok Cancel ? Help

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